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WORLD ADMINISTRATIVE RADIO CONFERENCE

ORIGINAL

HEARING

BEFORE THE

SUBCOMMITTEE ON COMMUNICATIONS

AND THE

SUBCOMMITTEE ON SCIENCE, TECHNOLOGY, AND SPACE

OF THE

COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION
UNITED STATES SENATE

NINETY-NINTH CONGRESS

FIRST SESSION

ON

WORLD ADMINISTRATIVE RADIO CONFERENCE IN GENEVA

NOVEMBER 6, 1985

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WORLD ADMINISTRATIVE RADIO CONFERENCE

WEDNESDAY, NOVEMBER 6, 1985

U.S. SENATE, COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION, SUBCOMMITTEE ON COMMUNICATIONS, AND SUBCOMMITTEE ON SCIENCE, TECHNOLOGY, AND SPACE,

Washington, DC.

The subcommittees met, pursuant to notice, at 2:10 p.m. in room SR-253, Russell Senate Office Building, Hon. Slade Gorton (chairman, Subcommittee on Science, Technology and Space) presiding.

Staff members assigned to this hearing: Cassie Phillips and Kathy Meier, staff counsels; Marty Kress, minority professional staff member; and Tom Cohen, minority staff counsel.

OPENING STATEMENT BY SENATOR GORTON

Senator GORTON. Good afternoon, and welcome to this joint hearing of the Subcommittee on Communications and the Subcommittee on Science, Technology, and Space. I should like to thank all of our witnesses for taking the time to present the results of the Space WARC to us, and I should especially like to thank Senator Goldwater for agreeing to hold this joint hearing. He has demonstrated a great deal of leadership in the area of international telecommunications, which are increasingly carried by satellite. This subject is of great interest to me, both as a member of the Communications Subcommittee and as chairman of my own.

The World Administrative Radio Conference in Geneva this summer addressed one of the most important areas of space and communications policy: how to allocate the geostationary orbit, and whether space services using it should be planned. From all reports, the U.S. delegation did an outstanding job at the conference. The issues and the politics were complex, and our ability to come out as well as we did is a credit to Dean Burch and to the rest of the delegation.

I look forward to listening to the witnesses and learning more about this important conference.

Senator Goldwater I hope will be here. In any event, we will include his statement in the record.

OPENING STATEMENT BY SENATOR GOLDWATER

Good morning and welcome to this afternoon's joint oversight hearing of both the Communications and Science Subcommittees on the subject of the World Administrative Radio Conference. There has been a great deal of interest in the first conference that took place during August and September in that it was assembled by the International Telecommunications Union in an effort to deal with the issue of the

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developing nations' desire for guaranteed access to the geostationary orbit prior to their ability to make use of the spectrum.

I am particularly interested in learning of the results of the efforts of the United States delegation in opposing the suggestion of strict a priori planning, especially since the United States strongly objected to holding the meeting. I am also, of course, very interested in now we will proceed from here, and how we can best prepare for the coming intercessional meetings.

We are very privileged to have with us today a number of experts in this area who will no doubt be able to shed a great deal of light on the results of the conference and at the same time be able to respond to any of a variety of questions that our members may have.

Senator GORTON. I see that the first panel is already here before us, and we will start with Dean Burch.

STATEMENTS OF HON. DEAN BURCH, CHAIRMAN, U.S. DELEGATION TO THE WORLD ADMINISTRATIVE RADIO CONFERENCE ON THE USE OF THE GEOSTATIONARY-SATELLITE ORBIT AND THE PLANNING OF SPACE SERVICES UTILIZING IT; DAVID MARKEY, ASSISTANT SECRETARY FOR COMMUNICATIONS AND INFORMATION, DEPARTMENT OF COMMERCE; JANICE OBUCHOWSKI, ASSISTANT TO THE CHAIRMAN, INTERNATIONAL COMMUNICATIONS, FEDERAL COMMUNICATIONS COMMISSION; AND DIANA LADY DOUGAN, U.S. COORDINATOR AND DIRECTOR, BUREAU OF INTERNATIONAL COMMUNICATIONS AND INFORMATION POLICY, DEPARTMENT OF STATE

Ambassador BURCH. Thank you, Mr. Chairman, and thank you also for your kind opening statement.

I have a prepared statement which I would submit to you for the record.

Senator GORTON. That will be included in the record.

Ambassador BURCH. It is somewhat lengthy, and I would like to limit my remarks at this time to cover three basic areas. I would like to give you a synopsis of the results of the ORB 85; I would like to discuss the preparations of the U.S. delegation for that conference; and finally, some observations on the ITU as an institution.

I think it is fair to say, Mr. Chairman, that thanks to the assistance of the U.S. Government and the private sector, and a wonderful delegation, the United States returned from Geneva with its head held high and with our basic objectives accomplished. It is probably an understatement to say that it was a somewhat unpleasant 6 weeks in terms of the atmospherics during the conference. Nonetheless, the results were, if not pleasing, certainly satisfactory to the United States.

Essentially, the question, the difficult question, was what sort of planning should be done to guarantee in practice equitable access to the geostationary orbit? It was decided early on that the planning exercise would be limited to the fixed satellite service, thereby eliminating from the discussions at the conference a number of the services that utilize both the orbit and the spectrum resource.

The big argument that took so much of our time during the conference was among the proponents of a rigid a priori type planning method, and those countries like the United States which felt and feel that rigid a priori planning is wasteful not only of the geostationary orbit but of the associated frequencies. Our fear of such a

method does not arise out of any notion that we want to prevent other countries from utilizing satellite technology, not at all. Our fear arises simply because planning is inherently wasteful, and an unused geostationary orbit position is of no value to anyone. Neither are the frequencies of any value unless they are utilized for communications.

Nonetheless, the conclusion that we reached was that we adopted, in principle at least, the notion of an allotment plan for certain frequency which, although very inchoate at this time and remaining to be worked out during the intersessional periods, offers at least the possibility of considerable flexibility in its application.

The frequencies which were associated with that allotment plan are what are known as the expansion bands at C band, 4 and 6 GHz, and at the KU band, 11-12/14 GHz. These are bands that are not operational in the United States at this time, and therefore, the immediate impact of this planning approach on the United States is imperceptible.

We were successful in making sure that certain frequencies bands which are utilized for national security purposes in the United States, as well as other countries, I might add, were not included within the allotment planning, and I think that was a considerable plus from our point of view.

In addition to the allotment plan, we determined that there would be improved regulatory procedures for those frequencies which are not subject to allotment planning. The principles of the improvement procedures will, I think, after they are worked out follow closely the suggestions made by the United States at the conference for a multilateral planning method, a method which would substitute multilateral meetings for the present sequential meetings.

Another one of the results of the conference which was particularly favorable to the United States was that the region 2 broadcast satellite plan which was adopted in 1983 by a regional radio conference was accepted by the World Administrative Radio Conference and made a part of the radio regulations. This has considerable impact in the sense that the region 2 plan—which is North and South America--essentially now has the same dignity as the plan of regions 1 and 3. At this point I would like to say that those members of the delegation who were involved in the adoption of this plan and the incorporation of the plan in the radio regulations did an absolutely remarkable job, because when we arrived in Geneva, it was clear that there was much opposition to the acceptance of this plan, and in this case, not necessarily from developing countries but from our otherwise allies. Nonetheless, these nations, after listening to the presentation that our delegation made, changed their mind. They accepted our proposals, and we did manage to get the plan incorporated in the radio regulations. I assume that will come to the Senate for ratification as a treaty in due course.

One final item on the results. In the matter of sound broadcasting, an issue in which the United States has an interest, nothing was resolved, but the issue was kept alive, and it will be considered during the intersessional period.

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As far as the preparations for the conference are concerned, I think it is fair to say that the Government, in this case I mean particularly the Department of State, the Department of Commerce, and the Federal Communications Commission, were very farseeing in preparing for this conference. The preparations, the active preparations, went on for almost 4 years. I was appointed as the putative head of the delegation some year before the conference, and I worked on the preparations on a part time basis for a full year.

In addition to that, we had an absolutely remarkable delegation representing every aspect of the Government and representing, I think fairly, all aspects of the private sector which would be affected, by the conference at Geneva, and to a man and a woman, our delegation was hard working, effective, informed and well prepared.

I would commend to this committee and to the other agencies of the Government that a comparable preparation be implemented for the second session of this conference which will be held in the summer of 1988.

Some brief observations on the ITU. The ITU is an old and respected agency which antedates the United Nations and which has, I think it is fair to say, been somewhat of an engineers' club over the years, a place where engineers got together and solved technical problems to the mutual benefit of the countries that were represented. The ITU plays a very important role for the United States as well as other countries around the world.

During the past decade, perhaps two decades, the ITU, like other international institutions, is falling prey to politicization, and the problems that we had at the conference this summer I think can be summed up in the term "politicization." We had a north-south struggle, a struggle between developed countries and developing countries, both sides of which felt that they were doing exactly what was right for their administrations. But nonetheless, the machinery of the ITU is not well designed to handle political issues. The rules of the ITU are not well structured to handle political issues.

I make these points not to suggest for a moment that we withdraw from the ITU or that we take any precipitous steps. This is not a UNESCO situation. I simpliy point this out because I think that the United States and other interested nations should take steps both at the administrative conference and at the plenipotentiary to try to improve the rules of the ITU so that it can accommodate the sort of debate that went on for almost 6 weeks this summer, a debate that became rambling and somewhat incoherent simply because the rules of the ITU are not structured to handle that sort of discussion.

As you are well aware, when a plenary body begins to act as a drafting subcommittee, it is not the most efficient way to use anyone's time, and unfortunately, since the committee system broke down totally at this conference because of an inability to reach any consensus at the committee level, the decisions that were ultimately made were made in the plenary. This was a time consuming and painful process, but I am happy to say, a process which I feel worked out well from the point of view of the United States.

I will be happy to answer your questions, Senator.

[The statement follows:]

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STATEMENT OF HON. DEAN BURCH, CHAIRMAN, U.S. DELEGATION [1]

I appreciate the opportunity to report to this Committee on the outcome of the first session of the two-session World Administrative Radio Conference on the Use of the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It. The conference is usually referred to as Space WARC, and specific reference to the first session is sometimes stated as WARC ORB-85.

Background

This conference was called for at the ITU's 1979 General World Administrative Radio Conference in response to developing country concerns that the current regulatory process for satellites using the geostationary orbit might not satisfy their long-term requirements. They feared that developed nations would monopolize the orbit and related frequencies to their detriment.

The basic terms of reference for the first session of Space WARC were developed at the ITU Administrative Council meeting in June 1983. The conference had five principal objectives:

a. to devise a planning procedure for the use of the Geostationary Satellite Orbit (GSO) in order to guarantee in practice equitable access for all countries to the radio spectrum of the space services using it;

b. to develop guidelines and technical criteria for the planning of uplinks for the Broadcast Satellite Service (BSS) plan of ITU Radio Regions 1 and 3;

c. to incorporate the BSS plan for ITU Radio Region 2 into the Radio Regulations;

d. to address the question of Satellite Sound Broadcasting; and

e. to develop an intersessional work program and an agenda for the second session.

While nearly every ITU organ participated in preparations for Space WARC, the major event was a four-week Conference Preparatory Meeting (CPM) in the summer of 1984. The CPM produced an eighty-page Report and a 323 page annex that addressed the agenda items of the conference. The United States actively participated in the work of the CPM, together with delegates from 60 administrations and 33 other organizations. Substantial work also was done in several of the ITU's International Radio Consultative Committee (CCIR) Study Groups which contributed to the technical basis of the conference.

U.S. Preparations for Space WARC

Because access to the geostationary orbit is critical to U.S. economic, commercial and national security interests, preparations for Space WARC were unusually thorough. These preparations began in early 1980, shortly after the end of WARC '79.

Between 1980 and 1984, the senior staffs of the Federal Communications Commission (FCC), Department of State, and the Department of Commerce's National Telecommunications and Information Administration (NTIA) responsible for conference preparations met regularly to coordinate their activities.

1/ The attachments to this statement, Annex I-IV have been retained in the Committee files.

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In 1980, NTIA established a specialized Space WARC preparatory sub-committee (Ad Hoc 178) within the Interdepartment Radio Advisory Committee (IRAC). IRAC is the formal mechanism for coordination of Executive Branch use of the radio spectrum. Since 1980, Ad Hoc 178 has met monthly to follow conference related developments and to prepare policy options on Space WARC matters for the Executive Branch.

The FCC created a public advisory committee that brought scores of private sector experts together to provide advice on nearly all aspects of the conference. Every interest in the field of communication satellites -- manufacturers, operators, users, and the academic community -- was represented. The Advisory Committee on Space WARC submitted its First Report in 1982. The record of historical, scientific and engineering data compiled by the Committee formed a major part of the FCC's First Report and Order on Space WARC. This, in turn, provided significant materials for the United States contributions to the CPM.

In early 1984, the Department of State established a formal focal point for the various preparatory efforts in the Office of the Coordinator for International Communication and Information Policy. A senior NASA manager was recruited to be Executive Director for Space WARC and to head the newly-created Space WARC office, which was enlarged with the addition of two other officers as preparations went forward for the 1984 CPM. I was named as head of the U.S. Delegation to the Space WARC first session in June 1984 so that I would have a recognized status when I visited the Conference Preparatory Meeting that summer to begin my familiarization with conference preparations.

Following the end of the CPM in July 1984, a core group drawn from participating agencies and the private sector was formed under my chairmanship to provide a focal point for Space WARC preparations. Over the next year we met on the average of once a week. The members of the group were the principal participants in the bilateral and multilateral consultations which took place both in Washington and abroad.

The Conference Preparatory Meeting was a key event in our preparations. More than any other single event, it focused attention on the problems that the U.S. would have to face at Space WARC. The CPM was useful because it brought home forcefully that we would have to provide much of the leadership and vision if we were to have any hope for a successful outcome at the first session.

The charter of the FCC's Space WARC Advisory Committee had been renewed in 1983 following the issuance of its First Report. Following the CPM the committee focused its attention on problems raised at the meeting and accelerated its timetable to mesh with the timetable of the overall preparations. The Committee's Second Report was scheduled for early 1985 so that it could be incorporated into the FCC's Second Report and Order on Space WARC, and provide one of the bases for policies which would be in the process of formulation at that time.

One of the things that was apparent following the CPM was the need for additional information on the views of a broad spectrum of countries -- both those we thought would have views similar to ours, and those which would have quite different views.

Starting with our closest allies, we held bilateral consultations with both the British and Canadians in the early fall of 1984. In November I headed an interagency group that visited Geneva to consult with the Western Group and Other Governments (WEOG), which included representatives from the UK, Canada, France, the FRG, The Netherlands, Italy, Australia and Japan. We also stopped in Brussels to reinforce with the NATO Allies the importance of Space WARC to military communications. Two further meetings of the WEOG were held in the winter and spring of 1985, and the group met again at the beginning of ORB-85.

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Early in 1985 we broadened consultations to include other countries with a diversity of views, while at the same time keeping in close touch with our allies. Individual bilaterals were held with Venezuela, Colombia, Chile, Mexico, Brazil, Argentina, USSR, France, FRG, Norway, Sweden, Denmark, Spain, Portugal, Netherlands, Yugoslavia, Japan, PRC and India. U.S. teams participated in the three ITU-sponsored regional seminars in preparation for Space WARC which were held in the spring of 1985 in Buenos Aires, Nairobi, and Bangkok. At these seminars the U.S. met with some 20 additional countries. The Buenos Aires seminar was followed by a meeting of COMCITEL, a constituent body of the Organization of American States, which focused on Space WARC issues. U.S. representatives attended one more COMCITEL meeting prior to the conference, and that group met, with U.S. participation, on four occasions during the conference.

At the conference, the U.S. met frequently with key delegations, including the PRC, USSR, FRG, Japan, India, Kenya, and the Arab group. In addition, systematic assignments were made so that at least one member of the U.S. Delegation was responsible for developing a relationship with the members of each other delegation attending the conference. Four more meetings were held of the WEOG at critical junctures in the conference, and delegation members met on three occasions with the NATO representatives to reinforce the need for NATO administrations to actively participate in floor debates which bore on questions concerning frequencies of interest to NATO countries.

I have described the consultative process in some detail because it had a direct bearing on the policies which evolved, the resulting U.S. proposals, and our approach to the conference.

In April of 1985, after consultations with other agencies and the private sector, the Department of State nominated a U.S. Delegation balanced to include representation from all appropriate federal agencies and private sector interest areas. The delegation list was approved in late April. A copy is attached as Annex I.

Policies and Proposals

As we broadened our contacts in the winter and spring of 1985, it became increasingly clear that maintainance of the status quo with regard to procedures governing access to the GSO and associated radio frequencies would not be possible. A significant number of developing countries, with strong leadership from a handful, were coming to Geneva to demand long-term, rigid planning (frequently referred to as a priori planning) in most if not all of the radio frequencies allocated to the Fixed Satellite Service (FSS), the space service encompassing communication satellites on the geostationary satellite orbit.

Such an outcome would have been damaging to vital interests of the United States as well as other industrialized countries. We therefore began to explore ways to head off such an outcome while at the same time responding to the legitimate concerns of developing countries over future access to satellite communications.

Based on deliberations in the core group and the work of the FCC's private sector Advisory Committee which was incorporated into the FCC's Second Report and Order, the U.S. in early March submitted an initial set of proposals to the ITU for distribution to member administrations. These proposals consisted of a set of principles which we believed should govern the work of the conference, and our proposal that the results of the Region 2 BSS Conference be incorporated into the ITU Radio Regulations. These documents, as distributed by the ITU, are attached as Annex II.

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After further study and deliberation, and consultations with allies and potential adversaries, we submitted an additional set of proposals to the ITU in mid-June 1985 (see Annex III). These specifically addressed the issue of how to guarantee access to the GSO and associated frequencies, and contained three basic elements.

The first of these proposed establishment of a multilateral planning or coordinating mechanism, to be applied at the FSS bands in the range 3700-7075 MHz. It was designed to resolve difficulties which had been encountered under the existing sequential bilateral coordination method used to ensure that new satellites do not interfere with existing satellites or other planned satellites. Designed to provide equitable access for near-term (2-5 years) requirements, this mechanism required equitable sharing of the technical and operational burdens of accommodating new satellites. It thus removed an aspect of current procedures which some allege gives an advantage to those who already have satellites on the orbit or notified -- referred to as "first-come-first-served."

Second, the U.S. document proposed that certain portions of the radio spectrum between 3700 and 7075 MHz, called the "expansion bands", be set aside to accomodate the long-term needs of developing countries. It provided for the notification, recording and protection of systems that might not be implemented for up to 15 years, in contrast to the present five years. This was designed to provide the "guarantee in practice" mandated by WARC '79.

And third, the proposal called for improvements of all procedures and standards applicable to coordination of satellite systems to foster optimum use of the orbit and spectrum resources, taking maximum practical advantage of the continuing advances in technology.

The U.S. proposal was a good one. It was fair to developing countries while preserving the flexibility inherent in the present system. But we did not see it as the only way to solve the problems. We remained open to other suggestions during the entire conference.

Key Issues and U.S. Objectives

The key issues for the United States at Space WARC were:

-- the nature of any planning to be undertaken by the second session;

-- the frequency bands in which any planning would take place;

-- incorporation of the Region 2 Broadcast Satellite Service (BSS) plan into the Radio Regulations;

-- the nature and scope of the intersessional work program; and

-- the structure of the agenda of the second session.

Keyed to these, the U.S. objectives were:

-- to avoid the imposition of any planning method of the kind known as *a priori* because of its basic inefficient and stultifying impact on orbit use and technology innovation;

-- to limit consideration of planning to the FSS, and that only to certain portions of the 6/4 GHz band. As a related matter, it was crucial that certain bands used for U.S. governmental and national security communications be excluded from any consideration for planning;

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-- to achieve incorporation of the Region 2 BSS plan into the Radio Regulations as an important adjunct to the continued development of this industry in the United States.

-- to keep open the option for the eventual implementation of a satellite sound broadcasting service without impacting existing critical radio services;

-- to ensure that the intersessional work program was structured to fit within the resources allocated by the 1982 Plenipotentiary Conference and reaffirmed by the Administrative Council; and

-- to ensure that the agenda for the second session was structured to avoid expanding the role of that session beyond that absolutely necessary to accomplish the basic objectives of the overall conference.

Proceedings of the Conference

The conference proceeded on two separate, nearly unrelated tracks; one of these worked, and the other nearly did not.

The one which worked had to do with the consideration of the Region 2 BSS plan for incorporation into the Radio Regulations, and other issues which could be technically defined and addressed.

We knew going into the conference that there was resistance to incorporating the Region 2 BSS plan, but it was only at the conference that we could identify and address the actual objections. Each obstacle to incorporation was subjected to rigorous analysis by technical experts intent on finding solutions. In every case mutually acceptable solutions were found. That this happened is a tribute to the expertise and hard work of all the Administrations participating in this part of the WARC. I would have to say it is also a tribute to how well prepared our delegation was, and to the cooperation between government agencies and representatives of the private sector. The two principal U.S. negotiators in this part of the conference were an official from the FCC and a representative of a U.S. satellite company.

Similarly, the conference's Technical Committee, although operating under the severe constraint of not knowing what planning approaches or mechanisms would be chosen, or to what areas of the radio spectrum they would apply, produced a solid, highly useful technical basis for whatever the future decisions would be, and for the intersessional work needed prior to the second session of Space WARC.

The other part of the conference, the one which almost did not work, was that part which addressed the central issue of planning. From the beginning, the proceedings in the committee on planning and procedures, as well as its working groups, were brought to a virtual standstill by a small group of developing countries which, at the outset, had the support of most of the other developing countries and, thus, a majority of the conference. Led by highly qualified and articulate spokesmen, these countries to the end pressed for rigid, long-term planning in all of the frequency bands allocated for use by communication satellites on the geostationary orbit.

In the end, in what ITU Secretary General Richard Butler characterized as "trench warfare," the hard-liners overplayed their hand, and their support eroded. During the last week of the conference the more moderate Third World countries increasingly perceived that without compromise the conference would make no decisions, to the ultimate detriment of all.

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As a result, a compromise emerged, but only after sessions which ran until the early hours of several mornings, and a nearly three-day extension of the conference which threatened, at the end, to collapse because of eroding attendance. In the compromise (see Annex IV), it was agreed to recommend to the second session in 1988 a dual approach to regulating satellite services.

First there would be "allotment planning," to be applied to limited portions of the frequency bands allocated for satellite communications. These bands, totalling 800 MHz, are not now being used for satellite communications. The allotment plan would guarantee at least one orbital position to each country in a portion of the orbital arc from which a satellite could "see" that country.

The second approach would involve improved regulatory procedures, incorporating some form of multilateral coordination, which would be applied in the larger part of these bands where satellite systems are now operated.

Another element of the compromise was the removal of the frequency bands used for our government and national security communications from any further consideration.

While we continued to maintain that the "allotment plan" would subject an excessive and wasteful amount of radio spectrum to planning, we did not oppose the compromise because it met our fundamental objectives. We did, however, officially note our reservations.

Before turning to an assessment of the results of the first session of Space WARC, I would like to mention one other accomplishment at the conference which is significant from the point of view of optimum development of the orbit and spectrum resources. This has to do with the principle which was formulated regarding the status of multi-administration systems.

An underlying assumption in all of our preparations for this conference was that, for the foreseeable future, the requirements of most countries in the world for satellite communications would continue to be fulfilled through the use of some kind of multi-administration, or multi-user system. Thus, any kind of planning regime should have as a fundamental principle that these systems would not be disadvantaged in relation to any other systems. On the other hand, to give multi-administration systems of whatever nature a status higher than national systems would be an infringement of national sovereignty.

I believe the principle which was negotiated in Geneva achieved an appropriate balance by making it clear that all systems would be treated on an equal basis whether authorized by individual administrations, multiple administrations, or international organizations.

In order to make it clear, however, that the United States, in doing this, did not want to imply superior status for any multi-administration system, we stated in an official record of the conference our understanding that the principle conferred "no preference in status, treatment, consideration, or in any other way to any multi-administration satellite system with respect to any other satellite system. . ."

In my judgment, as a participant in the negotiations which led to acceptance of the principle, any interpretation which runs contrary to this would not be correct.

Results of the Space WARC First Session

From the U.S. viewpoint, the results of the first session were mixed.

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On the positive side:

-- Consideration for planning was limited to the FSS.

-- The majority of the spectrum at 6/4 GHz and 11-12/14 GHz will be subject to improved regulatory procedures revised along the lines proposed by the U.S.

-- The bands of national security significance were not included among those to be considered for planning.

-- The Region 2 BSS plan was incorporated into the Radio Regulations.

-- The question of how to implement a sound broadcasting satellite service remains open for further consideration but with attendant flexibility in establishing an appropriate spectrum band not likely to have serious impact on existing radio services.

-- The proposed agenda for the second session adequately restrict the scope of that session to the principal issues of the conference and is satisfactory to the U.S.

On the negative side:

-- A long-term "allotment plan" approach was chosen to provide the guarantee of access sought by many administrations.

-- The "allotment plan" will be applied to 300 MHz in the 6/4 GHz expansion bands as well as to 500 MHz in the 11-12/14 GHz expansion bands (the latter was strongly opposed by the U.S. as wasteful and unnecessary).

-- The nature of the "allotment plan" remains unclear because the conference failed to be specific in its direction to the ITU secretariat and to the IFRB on how such a plan should be implemented. In any case the "allotment plan" has the characteristics of an a priori plan and the degree to which it may lead to inefficiencies in orbit use and limitations on technology innovation will only be determinable after the ITU secretariat and the IFRB have examined and reacted to the instructions from the Conference.

-- The intersessional work program is not well defined. The first session was unable to be specific on this aspect because of its inability to come to grips with key decisions on planning and frequency bands until the last days of the session. As a result, the ITU Secretariat, the IFRB and the CCIR staff will prepare a set of recommendations to the Administrative Council on what they view as an appropriate program. Given the existing resource limitations, these recommendations are expected to lead to additional controversy at the next Administrative Council meeting.

-- The second part of the agreed planning approach, i.e., improved procedures based on a multilateral coordinating procedure (a key element of the U.S. proposals) was inadequately dealt with during the first session. It remains to be seen just how the ITU staff will treat this aspect in their recommendations to the Administrative Council.

-- Rather than being excluded from consideration as strongly preferred by the U.S., the 20/30 GHz band will be reviewed in the intersessional period by the CCIR which will report to the second session of the conference "with a view to take a decision on the future planning of these bands by a future competent conference."

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Conclusions

In terms of U.S. interests, the effects of this outcome will be positive to negligible for the foreseeable future. Incorporation of the Region 2 BSS plan is, of course, positive. For the present, the status quo is maintained in the frequency bands where U.S. satellite systems operate. This eventually will be replaced by a multilateral coordination procedure similar to that proposed by the United States.

The significance of what happens in the expansion bands will depend on how "allotment planning" is elaborated in the intersessional period and at the second session. When more is known regarding how the ITU organs plan to approach this elaboration, the U.S. will need to decide how it will relate to or participate in this work.

This was a difficult and contentious conference, which only came to fundamental decisions during its final week. Because of the long deadlock caused by certain administrations which continued to insist throughout the conference on a priori planning in all frequency bands allocated to the FSS, much of the work which should have been accomplished will have to be done in the intersessional period or at the second session.

The U.S. delegation played a central political and technical role throughout the conference, which would not have been possible had it not been well prepared and staffed by experts in every technical and other area addressed at the conference. Under the circumstances, the outcome was the best which could have been achieved in terms of U.S. government and industry interests.

I feel honored to have been selected to chair the U.S. delegation to this first session of Space WARC, and I have nothing but the highest praise for dedication and competence of the men and women who served with me. They deserve great credit for their outstanding performance at this difficult and important conference.

Thank you.

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Senator GORTON. Thank you.

Mr. Markey.

Mr. MARKEY. Thank you, Mr. Chairman.

I have some very brief comments. First, I would like to strongly commend, as you have, Ambassador Burch and the other members of this delegation who I think did do a super job in the interests of this country. We had top quality leadership. The conference results I think reflect that.

We had good support from the Congress and the private sector, and all of those people working together I think did an excellent job.

Second, I would like to touch on an aspect of this that I think Dean touched on, and that is the ITU and the importance of ITU conferences. Why is effective U.S. participation in this particular conference as well as other ITU proceedings important to our Nation and the economy? The reason is that the decisions which are reached at these conferences basically set the parameters for many of the various telecommunications services which we in the United States depend on. How much radio spectrum is allocated to given communications service and the international rules which govern the use of that spectrum have a direct bearing on the equipment and service markets that are involved.

These ITU decisions thus have a direct effect on international trade and our competitiveness. These rules also largely determine whether U.S. industry and the Federal Government will have available the radio frequencies which are needed to foster greater productivity, contribute more consumer or customer service options, and satisfy national defense and other public service needs.

For the Federal Government, whose frequency requirements are NTIA's special responsibility, the ITU decisions are critically important. They affect the Government's ability to provide a wide range of public services that depend on radio communications, everything from improved air traffic control to better law enforcement. The ITU's decisions, moreover, have a great significance when it comes to ensuring a strong and effective national defense, as you can imagine, particularly given the increasing reliance of our defense effort on radio communications.

Third, Mr. Chairman, let me just stress the importance of a continued strong national commitment to working effectively within the ITU. The ITU proceedings, as Ambassador Burch has indicated, are becoming increasingly complex and difficult because the stakes are growing, not just for America, but for virtually every other country in the world. Our national dependence on effective communications is very substantial, but many other nations throughout the world are also trying to capitalize on the efficiencies and gains implicit in the new technologies. So not only is there in effect a growing international competition for spectrum, but the level of engineering and political sophistication required to function effectively in the ITU is also growing.

The technical measures needed to accommodate all the demands on the spectrum are becoming more and more complex. As Dean has pointed out, there is concern over the increasingly political nature of the discussions in the ITU, and in my view this is inevitable because of the importance of communications to economies and

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to those who govern. In any political system, the exchange of ideas and information through the use of communications facilities is critical to effective leadership and the control of national agendas, and this will mean in the future that we must take this aspect into consideration in putting together our delegation to include those who have experience in dealing with political and legislative type of situations, such as Dean Burch.

However, the technical aspects are still going to be of central importance. I had the opportunity to attend the last week of the proceedings, and it was clear to me that many countries continue to be represented by technical personnel who are swayed by good, solid engineering arguments. So I think on our delegation we have to continue to have a good blend of the kind of talents that we have had in the past.

I think what all this means is the United States, both Government and the private sector, has to be prepared to devote time and attention to ITU proceedings because they have a great importance to us, and that importance is going to increase. If we want to maintain our technological leadership in this sector, and we want to guarantee that the results are in accord with our national interests, we must make a significant and sustained national effort to work within the ITU.

In regard to the specific results of the recent space WARC, let me note that when we went into this conference, we knew that we faced a major uphill battle. The United States is not only the major user of satellite communications. We are also the leading opponent of the kind of rigid, a priori planning methods that some foreign communications administrations favor. Since we are the world leaders in aerospace and telecommunications technology, we had perhaps the most potentially to lose.

The adoption of a rigid, a priori planning scheme for satellite communications would have a number of adverse effects. It would freeze the underlying technology and, in the process, thus neutralize our technological lead. Any such planning system, moreover, would tend to restrict our national use of this important communications technology.

As a result of our delegation's efforts at the space WARC, however, we are able to limit any rigid planning measures to just a few of the so-called expansion bands. We managed to ensure that the improved procedures for planning the use of the fixed satellite frequency bands will not have a major adverse effect on U.S. technology and communications users.

We were also particularly pleased that certain key frequency bands which are of great importance to our national defense efforts—and which are used worldwide—were not artificially constrained.

Similarly, we were able to rebuff efforts which could have blocked successful implementation of the Reagan administration's policy favoring the development of separate satellite systems. Some proposed that the radio frequency requirements of multilateral organizations such as intelsat be given priority. But we were able to ensure that U.S.-based international satellite systems separate from Intelsat are treated on an equal basis.

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Several controversial issues were deferred and will be taken up during intersessional work, as well as at the second session of the conference in 1988. These issues include the actual procedures to be used in coordinating geostationary orbit use, and how to implement the conference's recommendations for increased multilateral planning of satellite systems.

With me this afternoon is Mr. Francis S. Urbany, who heads NTIA's International Affairs Office and who was a Vice Chairman of the U.S. delegation. He is prepared to address the details of these efforts in the event that the committee has further questions.

That concludes my prepared statement, Mr. Chairman. I would be pleased to reply to any questions which you may have.

Senator GORTON. Thank you.

Ms. Obuchowski.

Ms. OBUCHOWSKI. Chairman Gorton, I appreciate the opportunity to report to you the FCC's assessment of first session results of the ITU Space Services Conference and how we view preparations for the Conference second session.

In the interests of your time and because Ambassador Burch has fully covered conference results, I shall quickly turn to matters of major interest to the FCC, and I would ask your leave to submit my more detailed comments for the record.

Senator GORTON. They will be included in the record.

Ms. OBUCHOWSKI. Thank you, sir.

First, the FCC would like to take this opportunity to express its appreciation to Ambassador Burch for the extraordinary dedication, character, and judgment that characterized his leadership of the American delegation. We would also like to recognize the great contribution of the other Government representatives and the private sector involved.

Our FCC private sector advisory committee was involved very early on in giving private commercial input into the preparations, and the private sector also represented the U.S. free enterprise system very splendidly to the world at the conference.

Second, one of the principal objectives of the Commission and the United States was the continued viable operation of existing U.S. commercial satellite systems and the flexibility to accommodate future requirements as they arise. The U.S. delegation was generally quite successful in attaining this objective. Existing, heavily used bands at 6/4 GHz and moderately used bands at 14-12/11 GHz escaped significant changes in the manner in which they are accessed and used. However, consideration of the expansion bands went further than the U.S. would have desired in that an allotment planning approach has been identified for 300 MHz of the expansion bands at 6/4 and 500 MHz at 14/11.

The United States was concerned about future access to the 14/11 GHz expansion bands, and we entered a declaration in the final report of the conference that, the frequencies identified for allotment planning are excessive, particularly with respect to the expansion bands at 13 and 11 GHz. The United States further reserved its right, to implement its satellite systems using any frequencies allocated to the fixed satellite service consistent with the provisions of the ITU Convention, Nairobi, 1982.

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The Commission is particularly concerned about allotment planning because the U.S. commercial market for 14/11 GHz communications satellites is rapidly developing. We can see some concrete needs for this capacity. Furthermore, the FCC's consistent view is that the spectrum resource should be used in the maximum efficient manner to bring new and better services to American consumers, and it is for these reasons that the FCC considers our reservation of rights to be an important facet of our position going into the second session.

Third, with respect to the broadcast satellite related issues, the Commission is very pleased with the conference results. With the incorporation of the region 2 broadcast satellite plans and provisions into the radio regulations, the path is completely clear for deployment of DBS service in the Americas. And this has two very practical effects. First, it gives our DBS satellites equal position in any coordination with regions 1 and 3. Second, it gives the American investment community the reassurance that they now know exactly the rules by which DBS should be deployed.

Fourth, before turning to the intersessional work, I would like to address the compromise that was reached concerning recognition of multiadministration satellite systems. After extensive and difficult negotiations, a compromise was reached that puts national and multiadministration systems on an equal footing in the planning exercises. To leave no doubt as to the U.S. view on this matter, the delegation included a formal declaration into the conference report stating that, "the planning principles adopted at the first session confer no preferences in status, treatment, consideration or in any other way to any multiadministration satellite system with respect to any other satellite systems planned or established." The Commission fully supports this statement.

Finally, turning to intersessional work, as noted by Ambassador Burch intersessional activity holds the key to success or failure of the second session. One can analogize the Space WARC to a rather complex football game with the intersession being viewed as the half time. It is during this halftime that the players in the game will assess the results of the first half and will develop their strategies for the second.

The United States must be an active participant during this halftime activity and must ensure that the necessary resources are available to the ITU to guarantee its success.

Chairman Fowler has asked me, Mr. Chairman, to assure you that the FCC will commit all necessary resources and the professional talent exemplified by the FCC staff here with me today to the second session preparations.

Thank you for your interest, and I am prepared to answer any questions on behalf of the FCC.

[The statement follows:]

STATEMENT OF JANICE OBUCHOWSKI, ASSISTANT TO THE CHAIRMAN FOR INTERNATIONAL COMMUNICATIONS, FCC

Messrs. Chairman and Members of the Subcommittee, I appreciate the opportunity to report to you the FCC's assessment of first session results of the ITU Space Services Conference, and how we view preparations for the conference second session. With me today are several staff members, including Ronald Lepkowski, U.S. delegation vice-chairman and spokesman for Committee Five on Planning; Edward

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Jacobs, U.S. delegation spokesman for Committee Six on Broadcasting Satellites; and Thomas Tycz, FCC designated federal employee to the Space WARC private sector Advisory Committee and alternate U.S. delegation spokesman for Committee Four on technical matters.

Events precipitating the decision to convene Space WARC and subsequent preparations for that conference were extremely complex, involving a wide range of interests and national perceptions. It was during the ITU 1979 World Administrative Radio Conference that some administrations first voiced serious concerns about their future access to the orbit/spectrum resource to satisfy fundamental communications requirements.

These concerns were triggered by several related events. Many administrations, particularly those of developing countries, were becoming concerned at the large number of satellites that were being launched into the geostationary-satellite orbit. Fears were arising that soon all of the orbital positions would be used, with no room left for new systems. Also, some administrations, again those of developing countries, just recently had encountered difficulty in coordinating their proposed new satellite systems under ITU procedures. They tended to view the current procedures as unduly favoring existing systems, with new systems having to accept strict operational constraints as the price for approval. These fears and concerns led to the adoption by WARC-79 of Resolution No. 3, which called for a conference to "guarantee in practice for all countries equitable access to the geostationary-satellite orbit and the frequency bands allocated to space services".

U.S. preparations occurred within several complementary forums. The FCC issued a series of four Notices of Inquiry and a Report and Order that, over a period of about four years, gradually developed the United States positions for the Conference, and contained the "first tier" U.S. proposals to the Conference. The Commission was greatly assisted in this activity by its "Space WARC Advisory Committee", chaired by Mr. Steve Doyle of the Aerojet TechSystems Company. This advisory committee also met over that same four year period and conducted extensive analyses of the current situation within the United States in the area of satellite communications, examined the potential issues that were likely to arise at the conference, and provided the Commission with extensive recommendations concerning our positions and U.S. proposals to the conference. The Advisory Committee also served as an extensive training ground, and resource pool, for private sector participants on the U.S. delegation.

The early focal point for inter-agency coordination of preparations for the Space WARC was in an Interdepartment Radio Advisory Committee [IRAC] ad hoc committee of NTIA. As the conference drew closer, this focal point was shifted to what is described as the "core delegation group", a group composed of representatives from the FCC, State, NTIA, DOD, NASA, and the private sector. The Department of State took the lead in providing administrative support. Ambassador Dean Burch headed this group, which came into being approximately one year prior to the conference.

We believe that the choice of Ambassador Dean Burch as the Head of the U.S. Delegation was a wise decision. His selection nearly a full year ahead of the conference contributed to a very solid preparatory effort. We fully support the naming of future heads of U.S. delegations to ITU Administrative Radio Conferences in a similar timely manner. The early naming of Ambassador Burch allowed him to lead in development of the U.S. positions and strategy, and to participate in numerous bilateral and multilateral discussions that preceded the conference. This is a necessity if the U.S. delegation chief is to be an effective leader at the conference.

Turning from organizational approach to substance, the issues addressed by the conference can be divided into several categories:

1. identify which bands and services should be subject to consideration by the conference for any new regulatory regime;

2. determine the nature of any "planning" or "improved regulatory procedures" for bands and services identified under issue number one;

3. develop technical criteria upon which any type of "planning" should be based; and,

4. address several broadcasting satellite related issues, including incorporation of the Western Hemisphere 12 HGz Broadcasting Satellite plan into the Radio Regulations, adoption of technical planning parameters for planning of ITU Region 1 and 3 (Eastern Hemisphere) broadcasting satellite feederlinks, and consideration of a frequency allocation for satellite sound broadcasting.

The United States preparations for Space WARC, as well as our proposals to the conference, focused on these issues. One of the principal objectives of the Commission and the U.S. was the continued viable operation of existing United States com-

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munications satellite systems, and the flexibility to accommodate future requirements as they arise. This objective applies to private systems, as well as to systems operated by the United States government. The heart of our proposal was to limit conference consideration to just the fixed-satellite service at the 6 and 4 GHz bands, to adopt improved procedures for satellite bands not considered for planning by the conference, and to develop a new, multilateral planning method for the bands at 6/4 GHz.

The U.S. delegation was generally quite successful in attaining these objectives. Existing, heavily used bands at 6/4 GHz, and moderately used bands at 8/7 GHz and 14/12/11 GHz escaped significant changes in the manner in which they are accessed and used. However, consideration of the expansion bands went further than the U.S. would have desired in that an allotment planning approach has been identified for 300 MHz of the expansion bands at 6/4 GHz and for 500 MHz of the expansion bands at 14/11 GHz.

It is in part of these expansion bands at 11 GHz that two U.S. companies have proposed providing private international business service. (Five different systems of this type have been granted some degree of approval by the Commission, two of them in the expansion bands). While these systems are not expected to be very large users of the spectrum, we do expect that because of strong interest expressed thus far, there could be a need to access more than just one or two orbit locations in order to provide international service. We can also expect that there will be some interest on the part of foreign companies or governments also to participate separately in providing additional international services. Orbit locations will be needed to accommodate those systems as well.

The U.S. was so concerned about future access to the 14/11 GHz expansion bands under allotment planning that we entered a declaration in the Final Report of the conference stating "that the frequencies identified for allotment planning are excessive, particularly with respect to the expansion bands at 11 and 13 GHz . . ." The U.S. further "reserve(d) its right to implement its satellite systems using any frequencies allocated to the fixed satellite service consistent with the provisions of the ITU Convention (Nairobi, 1982) and the current Radio Regulations (Geneva, 1985)."

In addition to the perceived needs for these expansion bands for international services, unexpected growth within the conventional bands at 14/11 GHz might make these expansion bands attractive for U.S. domestic service as well. While the expansion bands are currently available in the U.S. only for international services, an FCC Rulemaking Proceeding could open the bands to domestic services.

There still remains much work to be done in defining details of the allotment planning approach adopted at Space WARC. But, if provision is not made for proposed and foreseeable systems in the expansion bands during the allotment planning at the second session, then the U.S. will have to consider seriously its acceptance of such a plan. It may be necessary to act on the reservation taken at the first session.

With respect to the broadcasting-satellite related issues, the Commission is very pleased with the conference results. In spite of initial heavy resistance on the part of several European administrations and the Soviet Union, results of the 1983 Region 2 Broadcasting Satellite Conference were incorporated into the Radio Regulations in a form that is completely acceptable to the United States. Objection of the Europeans and Soviets were overcome by directly addressing them through development of acceptable technical solutions. With the incorporation of the Region 2 broadcasting-satellite plans and provisions into the Radio Regulations, the path is now cleared for development of Region 2 DBS service. System operators and designers now know precisely under what technical and operational constraints they must develop and operate their systems. It is the FCC's view that the constraints imposed by Space WARC are minimal and pose no serious obstacles to development of viable DBS services within the U.S. or elsewhere in Region 2.

Region 2 Broadcasting-Satellite incorporation is contained in the Final Acts of the conference. It is the only first session Space WARC outcome that will be incorporated into the Radio Regulations. For U.S. purposes, these results will be subject to advice and consent of the Senate prior to ratification. The Space WARC Final Acts come into force in October of 1986.

Other broadcasting satellite issues were of only peripheral concern to the Commission. It should be noted that whether to provide a frequency allocation for satellite sound broadcasting is still a live issue. The matter was the subject of considerable debate at the conference and has been referred to the second session for further consideration, pending any available inter-sessional studies to identify a suitable frequency allocation for this service within or near the 500-2000 MHz frequency band.

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Before turning to inter-sessional work, I'd like to address the compromise that was reached concerning recognition of multi-administration satellite systems. Driven by INTELSAT's concern that its systems be taken into account in any planning exercise, the conference attempted to adopt a principle that recognizes the special operational constraints of such systems, yet does not bestow any priority to multi-administration systems over national systems. After extensive and difficult negotiations, mostly outside of the formal meetings, a compromise was reached that puts national and multi-administration systems on an equal footing in the planning exercises.

Even with the adoption of the compromise, there remain differences of interpretation as to whether "national systems" includes the "private" international systems that the Commisison has recently authorized. There is no doubt on the part of the Commission that these systems do fall within that definition. To leave no doubt as to the U.S. view on this matter, the delegation included a formal declaration to the conference report stating "that the planning principles adopted at the First Session confer no preferences in status, treatment, consideration, or in any other way, to any multi-administration satellite system with respect to any other satellite systems planned or established by an administration to fulfill its telecommunications requirements." The Commission fully supports and endorses this statement.

Without doubt, the first session of Space WARC left much work pending. The ITU Secretary-General has been asked by the conference to prepare an inter-sessional work program that will be presented to the ITU Administrative Council next summer for consideration and approval.

The United States must give careful consideration to this inter-sessional work program, including the nature of work to be done, and the relationship between the ITU and administrations in its conduct. The Commission believes that it is essential that ITU administrations work closely with the ITU Secretariat, including the IFRB and CCIR, in developing the inter-sessional work program. There is much work to be done in a very short time period and only very limited ITU financial and human resources available. The development of the inter-sessional work program itself will have a significant effect on determining the course of second session discussions. As important as the development of the inter-sessional work program, of course, is the execution of that program. There will necessarily be activities described in the work program that will be conducted by the staff of the ITU, and other activities that will be conducted by administrations. It is absolutely vital that these activities be integrated into a cohesive whole so that the ITU and administrations are not working at cross-purposes.

The Space WARC first session directed the IFRB to convene periodic informational meetings between the ITU staff and administrations on the progress of inter-sessional work. It is our belief that these meetings should go beyond the mere passing of information from the ITU to administrations on work progress, to include a vigorous exchange of views and ideas on the progress and future path of inter-sessional activities. We further believe that the U.S., including the Federal Communications Commission, should be an integral part of that activity.

As part of its preparation for the inter-sessional activity and the second session of Space WARC, the Commission has renewed the Charter of its Space WARC Advisory Committee and is asking that Committee to examine first session results, study the nature of the inter-sessional work that it believes is necessary, and make recommendations to the Commission. We expect that this process will aid us in our preparations for next summer's ITU Administrative Council meeting, where the entire inter-sessional work program will be debated and decided. The Advisory Committee will also be examining a number of other issues related to the Space WARC. Although details have not yet been sorted through, the Commission expects our public inquiry proceeding to greatly assist us in development of our recommended proposals and positions to be transmitted to the Department of State for forwarding to the conference second session.

To sum up, the Commission can accept most of the results of the first session of the conference. Although there are still a number of details unresolved, we believe that the fundamental decisions reached at the conference, particularly those concerning the bands and services to be planned, limit inefficient use of the orbit and spectrum resources and may not overly constrain significant U.S. interests. All existing U.S. satellite systems have been recognized and protected, and those systems identified for implementation in the near future can be accommodated within the planning arrangements adopted at the first session.

The United States was well represented at the conference. The calibre of private sector and government representatives on the U.S. delegation was most impressive. We believe that the U.S. delegation may, in fact, have suffered from a bit of over-

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representation. Restraint should be exercised to avoid delegations so large that they become an impediment merely because of size. This was particularly evident in the large number of vice-chairmen on the U.S. delegation; there were 9. The vast majority of foreign delegations totaled less than that number. The Commission believes that ITU conference delegations should have one, and only one, vice-chairman from FCC, State and NTIA. An additional vice-chairman can be named from the private sector or another government agency in the case of very specialized meetings, where appropriate.

With regard to bilateral and multilateral meetings, the Commission believes that the series of meetings with foreign administrations that preceded the conference were of great use to the U.S. delegation. However, we believe that there is room for improvement in this area. As the discussions within the various ITU forums expand beyond purely technical matters, it becomes necessary to seek out information on activities within foreign ministries other than the PTTs, and to determine how these activities will affect conduct of foreign delegations at ITU conferences. It is in the United States' best interest for the ITU to remain as technical an organization as is practicable. However, it was obvious at Space WARC that a number of administrations were operating under a political agenda, and the U.S. delegation must be prepared to deal with that reality.

As noted earlier, inter-sessional activity holds the key to success or failure of the second session. The decisions of the first session have set the path for future inter-sessional and second session activity. However, as seen from the vagueness and fragility of some of the first session decisions, that path may contain many potentially hazardous detours.

One can analogize the Space WARC to a complex football game, with the inter-sessional activity viewed as the half-time. It is during this half-time that the players in the game will assess the results of the first half and develop their strategy and goals for the second half. The United States must be an active participant in this inter-sessional half-time activity, and must ensure that the necessary resources are available to the ITU to guarantee success of that activity and of the second session.

Thank you for your attention.

[The following information was subsequently received for the record:]

FEDERAL COMMUNICATIONS COMMISSION,
Washington, DC, November 29, 1985.

HON. SLADE GORTON,
U.S. Senate, Washington, DC.

DEAR SENATOR GORTON: This is in response to your letter of November 13, 1985, in which you and Senator Goldwater present follow-up questions to my testimony of November 6 on Space WARC. Specifically, you question why the U.S. was willing to accept planning for broadcast satellite services, but not for fixed satellite services, and why it was important to adopt the Region 2 Broadcasting Satellite Plan at Space WARC.

Addressing your first question, I would first like to emphasize that the United States does not favor planning for the broadcasting satellite service. The decision to engage in detailed planning of the broadcasting satellite service was one reached by the majority of western hemisphere countries over the serious reservations of the United States. However, upon serious study and consideration, the United States found that it could accept the decision.

The difference between broadcasting satellite and fixed satellite planning that makes the former more palatable lies in the nature of the services. Broadcasting service, at least within a given frequency band, is a relatively homogeneous service. In order to offer literally millions of customers a wide assortment of programming at low cost, it is necessary to adopt technical standards that ensure a high degree of compatibility between systems. Furthermore, these standards cannot be subject to change over the short or medium term. Such operational requirements lend themselves more toward an a priori planning approach.

In contrast, the fixed satellite service provides a wide diversity of services to the public, usually through an intermediate recipient of the signal. The differences in the types of services provided and the technical characteristics of these services make planning of the service an almost impossible task. Furthermore, while broadcasting service is usually static over the short term, fixed satellite service is very dynamic, with service offerings changing constantly, even over the same satellite. A final point is that the U.S. currently has over 25 commercial fixed satellites in operation, but has no broadcasting satellites at all operating. Planning of the fixed satel-

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lite service would have a more immediate and uncertain impact on the fixed satellite service, a situation on which we could not gamble at Space WARC.

Your second question addresses the importance of adopting the Region 2 broadcasting satellite plan at the first session of Space WARC. Until the Region 2 plan was incorporated into the Radio Regulations, such a plan had no force of law outside of this Region. Any western hemisphere nation seeking to develop and implement a broadcasting satellite service would have had to proceed through the complex advance publication, coordination and notification procedures of the Radio Regulations in order to have its system recognized and protected by eastern hemisphere nations. This burden would have been added to any requirements of the Region 2 plan and agreement for dealings with other western hemisphere countries. This would undoubtedly have led to delays in implementation, as well as uncertainties in coordination with other satellite systems. It is certain that problems would have arisen in coordinating Region 2 broadcasting satellites with European fixed satellite systems operating in the 12.5–12.7 GHz band.

With the incorporation of the Region 2 plan into the Radio Regulations, system operators now know that they have a clear road toward implementation so long as they stay within the clearly defined limits specified in the plan. System operators and designers now know precisely under what technical and operational constraints they must develop their systems. We have been advised by the industry that the removal of this uncertainly also aids significantly in the securing of financing for these systems.

I trust that the preceding comments fully address your concerns in this matter. I would be happy to provide any further information you may require concerning the Space WARC results.

Sincerely,

JANICE OBUCHOWSKI,
Assistant to Chairman Fowler
for International Communications.

Senator GORTON. Thank you very much.

Ambassador DOUGAN.

Ambassador DOUGAN. Thank you, Mr. Chairman.

I, too, have prepared remarks that I would like to submit for the record.

Senator GORTON. They will be included.

Ambassador DOUGAN. In the interest of time, however, I would like to highlight a few points.

One, a hearing such as this gives us an opportunity to say a lot of thank yous. I think you have already gotten the gist of the pride that we take in our delegation and the work that has gone into the preparation for the conference. The commitment of the FCC, and particularly their public advisory process, was invaluable to having the United States take a proactive role. The Interdepartment Radio Advisory Committee [IRAC] which is chaired by the Commerce Department, has brought together the technical expertise of the government. Its contribution was also invaluable. The early preparations which Ambassador Burch said, started 4 years ago, came to fruition in Geneva. We can take considerable pride in our efforts.

In that light I would like to talk about leadership and what I see as the U.S. role. We have talked about the change in character of the ITU and the politicization and the challenges that technology have created. These are attributable to a number of reasons, one of which is that the developing countries now see an opportunity to be players. Additional focus on developing countries is one of our key priorities intersessional work. I have also designated four other key goals for the intersessional period.

One is to assess better what it is that our needs are, not just the needs of the suppliers of communication but the needs of the users as well. The more emphasis we can put on the end users of commu-

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nication the more pragmatism we can bring to the process. In addition, we have got to be pragmatic if we are to promote the kind of flexibility necessary to expand the use of the geostationary orbit.

Our second priority is to work more closely with the newly industrialized countries. Ambassador Burch mentioned that we conducted extensive bilaterals in preparations for this conference. We have to continue to build on this. There is growing expertise in these developing countries, and the more we can make them feel and be players, the less likely it is that they are going to be spoilers. So much of the rhetoric in Geneva was generated by people with spoiler mentality.

The third priority is to gain a better understanding of where the technology is taking us. For example, even discussions of geostationary orbital slots may become less important in another couple of decades, if more of our satellite communications is through interlinked satellites.

The U.S. initiative of focusing on the expansion bands is another example of understanding where technology is taking us. We need to do more of that. We also considered the reverse bands concept, but for a variety of reasons, we felt that we could not bring this issue into the mainstream of the discussion at the conference. The British, however, did and I think that we can build on this.

I also think that a key element during the intersessional period will be our ability to demonstrate and explore the flexibility of technology with other countries.

The fourth priority, and my colleagues have touched on this as well, is the changes within the ITU. In the United States we are engaged in a top to bottom assessment of the ITU and how it conducts business in the context of U.S. interests. This does not mean that we are looking at the ITU in a negative manner, but rather we are seeking ways in which it can be improved. The European Community, as well, has displayed concern about the need for reforms, particularly in the CCIR and the CCITT process.

The upcoming examination of a possible restructuring of the ITU Convention offers a particularly precipitous vehicle for consideration of improvements. This will be one area of focus. Also, we should concentrate more of our efforts on the CCIR process where improvements are possible on a more evolutionary basis. I am, for example, intrigued by how the Universal Postal Union works; they have a congress every 5 years to ratify the work that is done on an incremental basis. However, when you work in the pressure cooker, hot house evironment of ITU plenipotentiary conferences and WARCs, you are building to a political crescendo, rather than cultivating the in-the-vineyard technical work that has been the hallmark of the ITU.

Last, there are some hard questions we have to ask about the commitment of additional U.S. resource to the ITU. The ITU budget has allocated only 900,000 Swiss francs for the intersessional work in 1986. As Ms. Obuchowski pointed out, the intersessional work may be viewed as the halftime in a football game; some of us think that this is the actual game.

We must decide whether and how we are going to be supportive of the ITU process. Previously, the best work has been done on an individual administration basis. This is a resource issue, and with

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our policy commitments to zero based budgeting, we need to confront it.

Finally, I would like to thank you and your colleagues in the Congress for your attention to this subject. At times it seems arcane, distant, and difficult to get the high-level focus that it warrants and has received from you. We have been very privileged to have Dean Burch as chairman, and we appreciate your interest in this most important ITU radio conference.

Thank you.

[The statement follows:]

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STATEMENT OF HON. DIANA LADY DOUGAN, U.S. COORDINATOR AND DIRECTOR, BUREAU OF INTERNATIONAL COMMUNICATIONS AND INFORMATION POLICY, DEPARTMENT OF STATE

It is a pleasure to join you this afternoon to present the views of the Department of State regarding the outcome of the first session of the Space WARC Conference.

In his testimony our head of delegation Ambassador Burch has reviewed in some detail the issues, the outcome and the U.S. preparations for the conference. Thus, I will address myself primarily to the tasks that remain ahead of us. But before I do I will comment briefly on three specific conference issues.

One of the key items on our list of priorities for the conference was incorporation of the Region 2 Broadcast Satellite Service Plan into the Radio Regulations. In our bilateral consultations we had learned that there was considerable opposition to incorporation of the Plan, particularly on the part of some of the European countries. We had not, however, been able to learn specifially what was troubling them. Once in Geneva the problems became clear, and we were able to address them on a technical level. What appeared at first to be insoluble problems became, when subjected to expert analysis, quite manageable. In the end the plan was adopted without opposition This was a clear and concrete achievement in support of U.S. interests.

Another important issue involves the treatment of multi-administration satellite systems. The United States, and a majority of ITU administrations, support the view that multi-administration systems deserve equal treatment with national systems. We oppose efforts to establish priorities among types of satellite systems. In the U.S. view, the language adopted at the first session ensures that all systems are to be treated on an equal basis, whether they are authorized by individual administrations, two or more cooperating administrations, or an international organization. To ensure that there could be no misunderstanding on this point our delegation read into the conference record a statement of the U.S. interpretation of the conference language. I would like to repeat it:

> "The United States of America states its understanding that the planning principles adopted at the First Session confer no preference in status, treatment, consideration, or in any other way to any multi-administration satellite system with respect to any other satellite systems planned or established by an administration to fulfill its telecommunications requirements."

The conference ultimately agreed upon an allotment planning method to be applied in the expansion bands at 6/4 GHz and 14/11-12 GHz. We believe, as we stated in our reservation to the outcome of the first session, that rigid planning is wasteful of resources and a hindrance to technological progress. By locking old technologies into the plan and by creating uncertainties about whether the benefits of scientific research can be utilized, it restricts the efficient use of frequencies and orbital slots and creates a disincentive to the introduction of new technologies

Nonetheless, we chose to go along with the compromise reached on allotment planning as an indication of our willingness to find solutions to the problems of the developing world, and because that compromise does not infringe on our basic interests.

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The vagueness of the language adopted may conceal possible dangers. Nevertheless, the compromise provides precisely the political guarantee that some so forcefully sought, while maintaining the flexibility necessary to ensure the practical development and implementation of new technology and new services.

Going into the conference the U.S. proposed setting aside portions of the expansion bands at 6/4 GHz for multilateral planning if that was considered necessary by most countries. The conference chose to apply allotment planning in the expansion bands at 14/11-12 GHz as well. We believe that was unnecessary since there is more than adequate spectrum available at 6/4 GHz for all proposed developing country systems. In the spirit of compromise, however, we too joined in the consensus on the issue. The central point is that the proposed restrictions will have no practical impact on the U.S. satellite industry.

As with other World and Regional Administrative Radio Conferences, we continue to learn and build on our experience. Without going into detail I would like to outline two of the more important lessons we learned at this conference.

The first has to do with leadership. The U.S. has more at stake in the ITU than any other country. Therefore, it behooves us to provide the kind of imaginative and dynamic leadership needed to make the organization work. If we do not, no one else is likely to do so. It is also clear that no one else will look out for our interests. In the beginning there were some in the U.S. who felt that the U.S. should support the status quo. The existing mechanisms work well and, from our point of view, there is no compelling reason to change them.

After much consultation with other countries the U.S. made a strategic decision to develop new procedures that would accomodate the interests of the developing countries while preserving the flexibility of the old system. U.S. proposals to the conference contained imaginative and forthcoming new ways to reconcile the present needs of the developed countries with the future needs of the developing countries. Those proposals eventually formed the basis for most of the serious discussion at the conference. If we had not exercised leadership and put forward our own proposals, in my view, we would have been isolated and would have faced far more difficult choices.

A second lesson concerns the ITU. The organization is only what its members want it to be. It does not have a life or a personality of its own. When we talk about the way the ITU does business, we are really talking about how member administrations do or do not do business through the ITU. To characterize what went on at Space WARC as "just another example of the politicization of a UN agency" is simplistic. Many of the decisions that have to be made at ITU conferences are inherently political. We must anticipate them and deal with each issue accordingly.

It can hardly be otherwise when you are dealing with issues as basic as the rights and abilities of countries to communicate within their own borders and with other countries.

Technological advances make the task even more difficult because they give a new urgency to the need to find equitable solutions to basic problems. This is not a new problem, but it is becoming more acute. What is making it so is the waning in the spirit of trust and compromise that has enabled the ITU to tackle the world's telecommunications problems for the past 120 years. We must seek ways to refocus the organization on its key responsibilities and to reinstill a willingness to find solutions that protect everyone's interests.

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While the first session of Space WARC is over, the issues that our delegation wrestled with for six weeks have not gone away. Far from being able to turn our attention to new issues, over the next few months we must come to grips with a number of continuing concerns.

For our part, I intend to concentrate on four broad priorities to help assure that the U.S. achieves its goals in the intersessional period and at the second session of the conference.

One, U.S. industry, even more than government, must define clearly their future needs and requirements.

Two, we must build on the growing technical expertise and pragmatism of the newly industrialized countries. Part of the unwillingness to compromise, to seek realistic solutions to the problems that face us stems from the fact that for most nations the debate is academic: they don't operate satellite systems and probably won't for the forseeable future. In some cases, they have not developed the expertise to grapple with the technical arguments that underline the proposals.

But a growing number of nations do care, and do understand. It seems to me that our job is make more countries feel like participants rather than spoilers. That is admittedly a tall order but the more successful we are the better chance we have of getting the ITU back on a smooth course.

Three, we must gain a better understanding of where the technology can take us -- for example, continue to explore reverse bands as well as intersatellite links and interference cancellers.

Four, we must pursue ways to enable the ITU process to better meet the challenge of technological change in an increasingly political environment.

It is critical that we carefully review the outcome of the first session and clearly define our objectives for the second session. This is where the private sector must play the major role. In addition to having much of the expertise, they have a large investment in present systems to think about. Strategies and technical details for protecting those systems need to be developed. As we learned in our preparations for the first session, inaction is not the best way.

As with the preparations for the first session, the continuing work of the FCC's Public Advisory Committee and NTIA's Interdepartment Radio Advisory Committee will each be vital to our assessments of commercial needs, on the one hand, and governmental priorities, on the other. We will continue to work closely with both of these groups to insure that the right questions are asked and answered.

Once we have our objectives clearly in mind, we must determine what intersessional work is most important to U.S. interests, and how best to accomplish it. Some of the tasks are clear; others are not. For example, the proposal for an in-depth study of reverse band operation clearly pushes the frontiers of technology and opens up new possibilities for resolving conflicting claims on the orbit. That should be high on our list of priorities. Another issue concerns research into U.S. proposals on burden sharing and isolation, two important elements in the multilateral planning approach. And finally, a critical task is the development of the technical parameters required for allotment planning.

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In order to take best advantage of the resources and talent in the private sector the Department will establish a special ad hoc group within the National CCIR organization to focus on our activities in this area. As demonstrated by the last Conference Preparatory Meeting, the CCIR will be an important forum in which to defend our interests.

In the area of allotment planning, the intersessional work is not well defined, due primarily to the vagueness of the allotment concept itself and to the fact that delegations did not have time to discuss it during the closing hours of the conference. The limited guidelines given to the IFRB imply a heavy burden on the ITU during the intersessional period. While the conference decided that there should be an allotment plan which would guarantee each country access to at least one orbital position within a useable segment of the orbital arc, and the related frequencies, it did not come to grips with how this was to be done.

Before work can even start on a mechanism for allotment, a clear and mutually agreed definition of precisely what allotment means must be arrived at. How that decision will be arrived at is by no means clear. It is a part of the conference mandate that was not addressed.

Once we have a definition in hand, as well as the necessary technical input, engineers and software experts must begin to develop computer programs for implementing the allotment plan. But this is not as easy as it may sound, since all orbit locations are not equal and will not serve the needs of all countries equally well. In addition to being a difficult problem to solve conceptually, it will be expensive to develope the computer programs and the mechanisms needed to administer the allotment system. It remains to be seen how the work will be funded.

Another issue that was merely put off until another day is the question of whether the allotment approach should be applied to the 30/20 GHz band. The U.S. insisted during the conference that it would be unwise to do so. The technology has not yet been developed to effectively utilize the 30/20 GHz band, and we believe strongly that it would be inappropriate to hamper the development of these bands by subjecting them to allotment planning. We will continue to oppose the application of the allotment procedures to these bands, but we must also continue to study their use so that we can make a persuasive argument for exempting them from planning.

The conference also agreed that new procedures should be created to streamline and enhance the effectiveness of the coordination of new satellites in the 6/4 and 14/11-12 GHz bands that are used by most satellites today. The U.S. submitted a comprehensive proposal for a new multilateral coordination method that would provide for periodic multilateral meetings as an alternative to the sequential consultation process that is now used. A large number of administrations expressed interest in this portion of the U.S. proposal. We think it has wide support as a truly practical means "to guarantee access in practice" and will continue to refine it in consultation with other countries to see how it can best be implemented.

In addition to these unanswered questions there are a number of issues that must be dealt with in the intersessional period. They include the use of satellites for sound broadcasting, an allocation of spectrum at 20 GHz for high definition television broadcasting, and planning of the feeder links for direct broadcast satellites in Regions 1 and 3. How the U.S. wants to address these issues must still be decided.

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Once we have determined what our own objectives will be for the intersessional period and for the second session of the conference, there are some hard decisions to be made about the practicality of doing the work on a multilateral basis. We must also determine who is going to pay for it.

The WARC's committee charged with outlining the intersessional work requirements estimated that the work to be done for the allotment planning alone would cost well over 4 million Swiss francs. The costs of CCIR and other IFRB work must be added to that, far exceeding the amount envisaged by the 1982 Nairobi Conference.

Thus far, 900,000 Swiss francs for 1986 has been approved by the Administrative Council. Someone is going to have to pay for the rest of the work. The question of who will be a major issue for the U.S. at the next Council session in June 1986.

The U.S. has argued that much of the work should be done by the administrations. That approach is regarded as essential by the U.S. since only administrations can make the decisions that will directly affect their systems. In addition, it has the advantage of allowing the work to be done without creating new bureaucracies, without increasing the size of the ITU and of holding down costs. Many of the developing countries oppose this course. They have neither the expertise nor the resouces to participate in the process in any meaningful way and they don't trust the developed countries to create procedures that will reflect the developing countries' interests.

This intersessional burden on the ITU also forces us to take a long, hard look at the overall mission of the Union. Under our current policy of zero real growth in the budgets of international organizations, increases in one area require matching reductions in others. The ITU is being pulled in different directions by its members: the U.S. and the developed countries want to see technical preparations given a higher priority while the developing countries, by and large, would like to see communications development assistance beefed up. Something is going to have to give and it is up to us to ensure that our own priorities are clear before the ITU Administrative Council meets again next June.

The ITU has long been an important forum for the U.S. The economic, political and technological implications of the first session of Space WARC dramatically highlighted and reinforced its importance. It is, therefore, vitally important that we be well represented at the ITU. We continue to count on the contributions of committed and talented people from both the government and the private sector to represent us in these conferences. I am particularly proud of the work of our chairman, Dean Burch. His combination of private sector and government experience proved just the right mix to bring out the best in everyone who participated in the conference. Much of the credit for the success of the mission belongs to him.

I would also like to add my appreciation for the continued interest and support from the Congress for our activities in this important policy area. Space WARC is only one in a series of major conferences in which the U.S. must take an active and thoughtful role. Advance in telecommunications technology put a great responsibility on us, as leaders of the free world, to ensure that the challenges that we face become opportunities and not problems.

Thank you.

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[The following information was subsequently received for the record:]

QUESTIONS OF SENATOR GORTON AND THE ANSWERS

Question. The ITU's Maitland Commission Report called for increased aid to developing countries for telecommunications. Did development aid become an issue at the Space WARC? What is the U.S. policy on assistance to developing countries for telecommunications?

Answer. The issue of communications development assistance was not a formal part of the Space WARC agenda. However, development assistance had significant though indirect effect in shaping the positions of many developing countries on the principal issues. For instance, the Conference has its genesis in Third World demands for access to the orbit spectrum resource, guaranteed through the development of long-term, rigid plan. Such demands are, at least, partially a developing country strategy to press for increased attention to development assistance. In a positive light, we noted that several delegates, who had participated in U.S. development assistance programs, assumed more moderate positions on the principal issues. We would hope that their U.S. experience had been a positive influence.

The United States Government considers telecommunications to be an extremely important development priority. It is a vital component of economic development and thereby contributes significantly to increasing human welfare and political stability. We are also keenly aware of the imbalance in telecommunications services between the developed and developing countries and of the urgent need for its reduction. The report of the Maitland Commission clearly and factually examines both these issues.

The record of the United States in telecommunications assistance has been good. A survey completed in 1984 on the activities of the United States Government reveals that some 25 federal agencies have programs which assist the less developed countries in building their communications systems. Even with a narrow definition of terms, the United States provides between $150 to 200 million per year for training, infrastructure, development, consultative services, and other assistance in the communication sector. We are equally proud of the contributions of the U.S. private sector, which through the U.S. Telecommunications Training Institute, grants tuition-free training annually to hundreds of telecommunications engineers and planners from the Third World.

While our record speaks for itself, we are not content to accept the status quo. Last year, the Senior Interagency Group for International Communications and Information Policy completed a study of U.S. development assistance activity and made recommendations to the National Security Council. This interagency report underlined the need for a greater refinement, focus and coordination of current programs and increased cooperation and dialogue between the U.S. public and private sectors. A more focussed, higher visibility assistance program would help strengthen U.S. influence in a number of countries in addition to strengthening the science and technology capabilities of the developing world and to providing access to foreign markets for U.S. telecommunication equipment and services.

The United States Government, however, recognizes that there are significant constraints on what we—or any other country—can do to help close the telecommunications gap. Real progress telecommunications development can only be based on a mutual understanding of the capacities, interests, and needs in the developed and developing countries alike. It is important in this regard to note that the Maitland Commission Report prescribes self-initiative as the primary catalyst to telecommunications development.

One of the problems that we in the United States face, and a problem which we share with other donor countries, is a high government budget deficit. Under the circumstances, we cannot expect there will be real increases in foreign assistance funding for quite some time. The task before us is thus to raise the relative level of priority accorded telecommunications and effectiveness within the current assistance programs, and those of the World Bank, the U.N. Development Program, and other multinational lenders. Further, we must reinforce the U.S. private sector's initiatives and leadership to ensure pragmatic, long-term solutions to the problems of Third World development.

The USG position towards the creation of a new Center for Telecommunications Development in Geneva is an example of our efforts to respond positively within the constraints of our policy concerns and available resources. Our position in the creation of the Center has been developed in close consultation with the private sector and is conditioned by the following concerns. First, the Center will draw upon exist-

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ing expertise in the private sector. Second, the work of the Center should not duplicate the work of existing private and international organizations. We believe that the majority of potential donor countries share our view that the new Center for Telecommunications Development must be organized in such a manner that it will attract private sector support. We will continue to consult closely with the U.S. private sector as we determine the role of the Executive Branch in providing indirect assistance to the Center and to achieve our broader communications assistance goals through a variety of bilateral and multilateral means.

Senator GORTON. Thank you. Dean, you came back to rave reviews here from every source that I have been privy to at this point. A couple of weeks ago I read a fascinating article on this subject in the National Journal. Have you read that?

Ambassador BURCH. Yes; I have.

Senator GORTON. Would you characterize it as accurately portraying both the challenges and what took place at the conference?

Ambassador BURCH. Well, I think it was a sort of stylized article, but I have no particular disagreement with it. I think that there have been more comprehensive, more technical approaches to the results. I guess anybody who ever gets quoted and does not like the quotes reacts somewhat that way to an article, but I would say on balance it is a very fair piece.

Senator GORTON. Do you have any other articles or periodicals about the subject which you think were especially good?

Ambassador BURCH. Well, I think Broadcasting magazine has done some good work on that, Senator. We could dig those up if you like.

Senator GORTON. I would like to see those. I think we will include by reference the National Journal article and any others that you think are accurate as a part of our Record.[1]

Ambassador BURCH. All right. I will take it upon myself to submit some things.

Senator GORTON. I gather from this rather considerable success that you would agree that you were appointed to this position far enough in advance properly to prepare yourself and to see to it that the entire delegation was appropriately prepared?

Ambassador BURCH. Yes, sir; I was. I think that is terribly important. Mrs. Dougan, Chairman Fowler, Secretary Markey, all extended every courtesy to me. They gave me briefings on the ITU, on how it operated. I had the opportunity to work closely with the people who formed the core of the delegation, some of whom you will be hearing from later today.

Others, in the government sector, will not appear separately, but there simply was not anything that happened in Geneva we were not prepared for, except that we did not have the votes on some of the things that arose, but that we were aware of. So, I think the early appointment of the delegation and the chairman was critical.

Senator GORTON. How would you describe the personal and international relationships which were developed? Obviously, I suspect that your policy goals were more important than being liked, but were you able to communicate even with disagreeing delegations in a way which helped you succeed, or at least smooth some of the rough spots over?

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[1] See, National Journal, Oct. 26, 1985, pp. 2406-12. Broadcasting, Aug. 25, 1985, p. 38, Sept. 2, 1985, p. 38, Sept. 9, 1985, pp. 40-42, Sept. 16, 1985, pp. 40-42.

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Ambassador BURCH. Yes, sir; we were. We used all of the standard procedures at a conference of that sort. We entertained people on a one-to-one basis. We utilized luncheons, dinners, that sort of thing. We held three cocktail parties on behalf of the United States, which sounds somewhat trivial, but nonetheless at those particular meetings a great deal of work gets done.

And despite the animosity which exists in some quarters about the United States as a nation, nonetheless we had the respect of these other countries. They recognize our expertise. They recognize our experience, particularly in the field of satellites. After all, we are the major satellite producer, launcher, operator, and user, and the Soviet Union is a distant second.

Senator GORTON. Did it turn out that we were often on the same side as the Soviet Union?

Ambassador BURCH. Yes, sir; it did. As a matter of fact, with a couple of exceptions, we were almost always on the side of the Soviet Union, which is very convenient because of the number of friends that they have when a vote is called.

It is probably fair to say, incidentally, that the Soviet Union walked away from this conference very satisfied with the results, as we were, and they had the same general interests that we did.

Senator GORTON. One of the issues which did create some controversy, I understand, was that of sovereignty over the geostationary orbit. How did it get resolved there at that conference, what questions do we still have in the future, and how should we react to them?

Ambassador BURCH. The sovereignty over the geostationary orbit is a continuing battle by the equatorial States in whatever forum they can find that will hear their complaints. In this case, Colombia was the moving party in the discussion. Having been rebuffed previously in the United Nations Committee on Peaceful Uses of Outer Space, they determined to take this issue to the ITU for resolution.

Frankly, their theory of sovereignty has no legal basis. It has no physical basis. It has no basis whatsoever. It has a political reality particularly to the nation of Colombia and some of the other equatorial countries. This is a very big domestic issue with them. The way it was resolved is that the conference determined that it did not have the competence to deal with what is clearly a political issue having nothing to do with planning of the geostationary orbit.

The matter was referred to the United Nations, specifically to the Committee on Peaceful Uses of Outer Space.

Senator GORTON. Ambassador Burch, either you or Ambassador Dougan, what is the position of the United States as to how far into the sky sovereignty extends?

Ambassador BURCH. I would be happy to start on that if you want. There is a treaty. We refer to it as the Outer Space Treaty, but it actually is captioned the treaty involving the Moon, the Sun, celestial bodies, and so forth. Unfortunately, it does not define, outer space. It simply uses the term "outer space." It, clearly, sets forth that no nation may by any means obtain sovereignty over outer space.

I think any group of scientists who are gathered will agree that although they may not know precisely where outer space is, 22,300

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miles falls within it, and that is the situation that we are talking about.

Senator GORTON. But on the other hand, 32,000 feet, where a jet flies, is not within it?

Ambassador BURCH. No; I think that is clearly territorial airspace. I have heard a number of theories about where space begins, and then when you add the adjective "outer," you have complicated it somewhat more. It is an issue that may or may not require some further juridical studies, but nonetheless there is no way to justify taking sovereignty over the geostationary orbit.

Senator GORTON. Thank you.

Ambassador.

Ambassador DOUGAN. Another point is that the discussions or claims of outer space are more properly addressed in other fora such as sovereignty to the UN's Committee on the Peaceful Use of Outer Space. It is important for the ITU to avoid discussions of areas which are not appropriate for its field or within its realm of competency.

There are some earmarkings of the law of the sea kind of issues in the use of space. We should be very careful about how we use the term "resource," as it seems to prompt contentions of ownership.

Senator GORTON. Dean, I understand Colombia also accused the United States of violating radio regulations.

Ambassador BURCH. Yes; they did.

Senator GORTON. Can you elaborate on those charges?

Ambassador BURCH. Yes; the charge was made by Colombia that two particular satellites of the United States violated the radio regulations. The primary charge dealt with a satellite called USA SAT 7A. The facts in that case, Senator, are very simple. The satellite was authorized by the FCC and the Hughes Co., which was the launcher, owner, and to be operator of the company, went to Colombia to carry out the negotiations with Colombia, the coordination procedures which are required under the ITU regulations in order to assure that there will not be interference. The reason Colombia was affected particularly was because they have made a filing for a communications satellite, which is what we refer to as a paper satellite. It has never been launched, but it has been advance published, and if you are going to launch a real satellite, you have to coordinate with Colombia.

During the course of those negotiations, it became clear that coordination would not be a difficult problem. However, the foreign ministry advised the Hughes people that the coordination process would be terminated until such time as the United States conceded that Colombia had sovereignty over the airspace in which our satellite would be launched, a position the United States would not take.

We then terminated the coordination and launched the satellite, which has been operating now for some 4 years. The other problem was a very technical one. Briefly, we moved a satellite's position by some 10 degrees, which was within the practice of the ITU, but because that movement put it into Colombian airspace, they objected to it.

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Their complaint in the second case was more with the ITU than it was with the United States, and they launched a formal complaint about the interpretation by the ITU of its own rules and regulations. They also, I might add, Senator, were involved in the question of peaceful uses of outer space, which is another whole subject which does not belong in the ITU, but again belongs in a more specialized forum like the Committee on Peaceful Uses of Outer Space.

Senator GORTON. Mr. Markey, I understand this is going to be your last appearance in your present position. We thank you for your service and congratulate you on your new opportunity, but you may be the most appropriate person to ask how we assure some kind of continuity in U.S. delegations and U.S. attitudes in dealing with continuing problems of this sort.

Mr. MARKEY. Well, let me just thank you for those kind words. I am going to miss this, at least some of it, though not all of it, and there is a great need for continuity. I think all of us here are very fortunate in that we have people who work for us who have been going to these conferences for a number of years and know what the heck they are doing.

I have people who have been going to them for 12 to 15 years, and they know people all over the world. That, I think, is one of the keys to the continuity, and we find also that people who leave Government somehow come back and appear on these delegations as members of the private sector. So, there is continuity there as well.

That is a critical point. A second way we can do that, I would say, is to work through the IRAC, the Intergovernmental Radio Advisory Committee, where all of the agencies cooperate and try to prepare for these meetings. That is an important effort in the technical area.

The engineering work is largely done there, so that will be important, and obviously the relationships between the departments, we have to continue to work together on these issues. There is more than enough to do for everybody, and we need the resources of all three agencies as well as the Department of Defense, NASA, and others, but we are lucky to have people who have been through this a number of times.

I think probably Dean found them to be quite valuable, and I have always found that they do an awful lot of good work, and I end up getting the credit, which I enjoy, but they are the ones who do the really tough, hard, nitty gritty work, and deserve a lot of credit. They are good public servants.

Senator GORTON. Since the conclusion of the first session of the space WARC, there seems to be some controversy over the preferences accorded to multiadministration satellite systems. Intelsat representatives and one U.S.-based firm have stated publicly that the conference created preferential treatment for such systems.

What is the official Government position on this question and your understanding of the results of the conference?

Mr. MARKEY. Well, let me just start on that, and then maybe somebody, perhaps Ambassador Dougan or Dean may want to comment on that. Our position is that there is no preference given to InTELSAT through what we did at the meeting. I was there when

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this was being discussed, and it was clear to me through the negotiations that were going on, that our intention all along was that we wanted everybody treated equally.

We don't believe that there was any preference given to Intelsat, and as a matter of fact in a proceeding of the Commission where that assertion has been made, we filed very strong comments indicating that that is not the position of the U.S. Government, and we don't believe that is the way it turned out.

Unfortunately, the language there, as it so happens, as you know, in a legislative setting, is such that people can argue that it goes their way, and unless there is an adequate record, which in some cases there is not, it is hard to dispute that. But that was not our feeling, and maybe someone else would also want to comment on that question. I don't know.

Ambassador BURCH. Mr. Chairman, I submitted an addendum to my statement dealing with that specific question. There is no doubt that the position of the United States in the original principles that we submitted for consideration was that in effect all satellite systems are created equal, and that international systems are not to be preferred over national systems. That was the intent and the clear meaning in English of the amendment that was made to the principle dealing with multiadministration systems.

Frankly, any interpretation to the contrary is just, I think, illusory.

Senator GORTON. Ms. Obuchowski, the FCC has authorized two of the U.S. separate systems to operate in the same expansion bands which will form the basis for allotment planning. Is this going to create a problem for these two U.S. systems, and are existing systems protected from having to move under the results of the conference?

Ms. OBUCHOWSKI. Mr. Chairman, we are happy to say that those two satellite systems were advance published prior to the beginning of the conference, and so we would state that these systems are existing systems which do receive protection, even under a potential allotment planning approach.

Senator GORTON. Ambassador Dougan, will the ITU be able to do an adequate job in formulating an allotment plan during the period between sessions?

Ambassador DOUGAN. That is one of the key questions for the intersessional period. Certainly the allocated resources of 900,000 Swiss francs for 1986 does not begin to meet the approximate 4 million Swiss francs that the conference itself estimated may be necessary to complete the work adequately.

This is one of the areas that we have to address, particularly given the broader policy context of the administration's commitment to zero-based budgeting in international organizations. From the U.S. standpoint, and particularly following the clear remarks of the FCC and others in terms of committing resources, we can only do a certain amount given limited resources. Certainly much of the expertise is in the developing countries, so that our leadership role will have a very key impact on whether the intersessional work is effective.

Frankly there are many unanswered questions, and the description of work for the intersessional period has been very, very fuzzy.

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This is because decisions about the scope of the work were deferred till the last hours of the conference. In both my testimony and Ambassador Burch's testimony we covered this problem to some extent. I wish I could give you a more definitive answer.

Senator GORTON. I am told that the question of debris left in space was one which was raised at the conference and that the British proposed that all satellites keep a reservoir of fuel sufficient to boost them out of orbit at the end of their useful lives. What was our response? Do we have a policy?

Ambassador DOUGAN. We felt that this was an issue worthy of further consideration and we placed it in the context of broader study. I am very fortunate to have a gentleman on my staff, Dean Olmstead, who is one of the world's foremost experts on orbital debris, I would be very happy to volunteer his services on this issue.

The United States does not intend to be dismissive of the issue of orbital debris. However, consideration of technological realities is necessary. For instance, do attempts to dispose of orbital debris result simply in the creation of additional debris? We have taken a responsible approach in saying that it is an important issue and that it warrants study.

Senator GORTON. But we do not have a specific policy?

Ambassador DOUGAN. We do not, and given the work that still needs to be done in this area, it would be appropriate at this time.

Senator GORTON. Senator Goldwater and I believe, other members of the committee will also have questions which they would like to submit to you in writing. I have completed my oral questions now, and would finish our part of the session only by repeating once more that it is very gratifying to us to be able to look on an American delegation to an important conference like this as having been well prepared and persuasive. Obviously, you did not succeed in attaining every single goal in all of its detail by any means, but it seems clear to me, at least, that you protected the interests of the United States skillfully and successfully. To look back on an international conference of this sort and reflect on that degree of success is very pleasing to us. Dean, you and I had a brief conference, at least, before you went out there. And each of you can look back on his or her participation, I believe, with a great deal of personal satisfaction as well as a great deal of national satisfaction.

Thank you very much for coming here this afternoon. We will now take our second panel, Mr. Stowe, Mr. Weiss, and Mr. Doyle.

Mr. Stowe, you may begin. I will say to you, as to the others, that your entire written statement will be included in the record as if read in full. You may summarize or build upon those statements if you wish.

STATEMENTS OF RONALD STOWE, VICE PRESIDENT, SATELLITE BUSINESS SYSTEMS; HANS WEISS, SENIOR DIRECTOR ON R&D AND ITU MATTERS, COMMUNICATIONS SATELLITE CORP.; AND STEPHEN E. DOYLE, DIRECTOR, STRATEGIC PLANNING, AEROJET LIQUID ROCKET CO.

Mr. STOWE. Thank you, Mr. Chairman.

I am very pleased to be here today, and I am especially pleased that the subcommittees have decided to hold a public hearing on

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these issues. We believe that the issues raised by the conference in Geneva are extremely important, and they are important to the Government, from both civilian and military applications point of view, to private industry, and to consumers in this country.

It was a very complex, very complicated, and not entirely comfortable experience in Geneva. But we learned a lot of lessons and we accomplished a lot of things that were very important for positioning the United States in the future.

I would like to add, as a representative of the private sector, that we fully subscribe to the plaudits that have been given to Ambassador Burch and other members of the Government and the U.S. delegation in doing a truly outstanding job under very difficult circumstances. I think that U.S. interests in fact were protected very well at this conference.

I would like to make several observations about how we got where we are now, and then where we might look in terms of future actions.

First of all, the United States has been very well served by the existing international regulations and technical format for dealing with access to the orbit and the radio spectrum. The Space WARC was convened however, by a significant number of developing countries who wished to make some fundamental changes in the existing regime. The real motivation behind those proposed changes, I would suggest to you, was not based on a concern about actual congestion in the orbit. That was in fact the convenient public rational for many of the proposed changes, and it was perhaps one of the initial concerns.

We were able to dispel many of those concerns about actual congestion, both now and in the foreseeable future, and we got down to the issues, implicit as well as explicit, that were really motivating many advocates for change. Those really were the questions, whether the ITU machinery could be transformed from its present focus on trying to maximize actual use of the orbit and maximize the efficiency in use of the orbit, to a system in which the rules for access to the orbit could be used to promote economic development of developing countries.

I think it is very important that we get down to some of the basic motivations that are actually behind proposals for change if the United States is going to deal effectively with those proposals between now and the 1988 session. The principal developing country goals were to establish for each country legal and political control over portions of the orbit. This would give rise in turn to an artificial scarcity for actual users. It would put many of the developing countries in the position of gatekeepers from which they could charge, barter, or otherwise constrain use of the orbit that they were assigned, but were not actually going to occupy themselves. This leverage could be used for their own economic advantage.

I do not say that neccessarily in a pejorative sense. That approach may make good sense in the national interest of many developing countries. And I might add that it is not surprising, particularly in light of our history in the law of the sea context and other international organization activities.

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The question, however, is how the United States responds; what we do about it. We have a very important continuing interest in the integrity and in the continued effectiveness of the ITU. We get many, many benefits in many fields from the work of the ITU, and it is important to us that that organization continue to be viable and effective. However, we are now dealing in the ITU in a politicized environment, which makes decisions—or can make decisions on the basis of one country, one vote. This poses obvious problems for us.

How do we deal with that challenge? First of all, we must recognize the importance to the United States of the ITU. I think we recognize the difference, for example, from a situation we faced with UNESCO. The ITU secretariat is a very professional, nonpartisan body.

The effectiveness of the ITU, in the past, I would suggest, has been based on the fact that as a practical matter the organization generally makes important decisions by consensus, not simply straight majority votes. In the 1985 Space WARC, the consensus procedure came close to failing, and indeed I suppose we will not really know until 1988 whether it did fail or not.

Why did it fail or why did it come close in this case? I would suggest that the reason was that in the present instance of negotiating about satellite orbital positions and frequencies, we were faced with a situation in which the majority of the members of the ITU felt they had nothing to lose.

This gave rise to extreme demands and an unwillingness to compromise. And as long as we go into negotiations in which the United States and a few other countries are the only ones with something at stake, then we will find it an extremely difficult, and perhaps not feasible, to protect our interests while keeping the organization itself viable.

To reinstitute the practice of consensus building, I believe it is essential that we ensure that the other side has something at risk as well as something to gain from negotiations we participate in. If this cannot be done within the scope of the specific agenda for the particular conference, then we should look to related telecommunications areas where other countries have a reliance or dependence on us.

And if we cannot find suitable or adequate offsetting interests in the telecommunications field, then we should not hesitate to look for linkage to other fields in order to protect what are now becoming vital national interests in the United States.

Telecommunications, and particularly satellite telecommunications, are no longer simply a convenience or an alternative facility for the United States. They are a vital part of our commercial Government and our national security systems, and we cannot afford to treat those issues simply as arcane technical matters.

I believe it is possible for us to continue to operate effectively in the ITU, but we too must change along with the times. We must deal with the politicization in the ITU. If both governments and industry will continue to devote the required resources and expertise, I believe that we can do so very well.

Thank you.

[The statement follows:]

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STATEMENT OF RONALD F. STOWE, VICE PRESIDENT, GOVERNMENT & COMMERCIAL AFFAIRS, SATELLITE BUSINESS SYSTEMS

The 1985 Spece WARC presented major new challenges to the United States in vital areas affecting both the Government and the private sector. The Government confronted serious threats to its interests both as a provider and as a user of satellite communications. In addition, the Government faced major challenges as a regulator. The immediate task was the formulation, advocacy and protection of U.S. interests during the 1985 Conference. Success in those efforts also required development of a clear sense of what technical, regulatory and political environment was going to be in the best public interest of this country in the longer run as well.

The private sector faced challenges which were equally diverse and complex. The Space WARC posed threats not only to operators and owners of communications satellites, but also to a wide range of American manufacturers of space segment and earth segment equipment, and to users ranging from major corporations to individual consumers.

Those threats were not limited simply to the number of orbital positions and frequency channels which this country might use, although those issues have their own substantial importance; they also directly challenged the diversity and costs of communications services which will be made available to users in the future.

The Space WARC posed serious challenges, in addition, to the International Telecommunication Union (ITU), the principal international institution responsible for maintaining world-wide order and efficiency in use of the orbit and spectrum. Although the organization is legally entitled to make decisions by majority vote, as a practical matter the continued effectiveness of the ITU depends in substantial part on the development of a broad and genuine consensus before major decisions are taken. Like most other international organizations, the success of the ITU depends on voluntary compliance by Member States with the decisions which are taken there. This is especially important and sensitive in the case of the ITU, where decisions can have a direct impact on vital interests of its members. A major conference outcome which adversely affected vital U.S. interests could have harmed not only those interests but, by destroying the essential consensus, could have damaged the institution itself.

The nature of the challenge we faced was both simple and fundamental. The United States has been well served by the technical, regulatory and political groundrules which have governed access to the orbit and spectrum in the past. In essence, those groundrules have established rights and imposed obligations with the goal of maximizing actual, beneficial use of the orbit and spectrum, with equality of treatment and of opportunity for all countries and users. During the last several years, however, a major initiative has been undertaken, primarily among developing countries, to change the fundamental purposes of the ITU. The proponents of these changes are urging that the ITU should divide and allocate orbit and spectrum resources for the purpose of creating and distributing a form of "wealth" to developing countries.

The most conspicuous change advocated by these proponents is that the orbit and spectrum should be divided among all countries, whether or not they intend to use those resources. Often referred to as a priori planning, this approach would create an artificial shortage of resources for actual users, and would give non-users the prior-consent right to impose charges, constraints, or even prohibitions, on use of huge unoccupied chunks of the geostationary orbit.

This creates several problems from our point of view. As a matter of law and practice the United States and many other countries have traditionally suported the principles that outer space is beyond national jurisdiction, that it is free for use by all countries, and that every State should have the right to use the orbit when it is able and plans to do so. The United States has consistently demonstrated an ability and willingness to take the technical, operational and political steps required to accommodate increasing domestic and international pressure on the orbit and spectrum, and under this system no country has ever been denied access to acceptable orbit and spectrum resources when required for actual use by a real system.

A key assumption of this policy is that the geostationary orbit is a natural resource which belongs to no one and which is "not subject to national appropriation by claim of sovereignty . . . or by any other means" (Article II, 1967 Outer Space Treaty). No nation has created or, except through actual use, given value to the orbit; therefore, it is and should be literally "free for exploration and use by all countries without discrimination of any kind . . ." (Article I, 1967 Outer Space Treaty). From our point of view, the detailed rules which govern access and use of outer space should be consistent with those general principles.

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Proposals to divide and assign segments of the orbit and spectrum regardless of actual use, and to establish a right of control over someone else's option to use those resources, represent a substantial departure from the system which has served us extremely well in the past.

The question then arises why such changes are being sought, and what should be the United States response.

The original proposals for change were expressed in terms of concern about the increasingly crowded conditions in orbit, and whether there would be adequate room available at a reasonable cost for countries which may wish to launch their first satellites ten or twenty years from now. Notwithstanding the fact that every applicant has so far been accommodated, the concern about future congestion is a legitimate issue on both the domestic and international levels.

Fortunately, there appear to be a significant number of ways to deal with projected crowding and radio interference pressures, and it is increasingly being recognized that actual congestion problems are likely to be solvable on a reasonable basis for the foreseeable future. Unfortunately, that realization has done little to reduce the pressures for radical change in the existing system. Congestion, therefore, is clearly not the real issue behind the current debate.

To deal with the real issues, it is essential to recognize that there is both a public agenda, namely to ensure that future entrants can find a good place in orbit, and an implied (and more important) agenda, namely to establish a new type of control over access to the orbit and spectrum, which can then be manipulated for the economic and political advantage of developing countries.

The implied agenda appears to offer no benefit and substantial potential disadvantage to the United States; it would impose significant costs and constraints on access to much of the orbit, which is now free and relatively unrestricted. And it would do so without creating any added value to the resources. In other words, the allocation or orbit and spectrum resources would primarily become the engine driving a new program for the redistribution of wealth and technology to developing countries.

The United States cannot afford to ignore or simply deny such an agenda. Whether we like it or not, it is consistent with the trend in other international organizations where developing countries have increasingly flexed the muscle of their majority numbers in pursuing their interests. That does not mean that we are automatically bound by whatever the ITU majority favors; in fact, we must ratify major decisions before we are bound by them. It does mean that we have a strong vested interest in ensuring that the ITU continues to work in a way that accommodates our interests as well as the interests of others.

The ITU is an orgainzation where decisions can have substantial, practical impact on our communications services, on our industry and on our economy. The ITU does not deal simply in political exhortations; it deals with the critical issues of ensuring that our telecommunications systems can work together with the greatest possible efficiency and without harmful interference. As the world's largest user of radio spectrum, the United States relies very heavily on international rules which establish a predictable and reliable environment for the operation of our systems.

We are not dealing here with another UNESCO; we are dealing with an organization which has a professional and impartial Secretariat and which performs functions of direct practical value to the United States. Finding a substitute outside of the ITU for the valuable functions now performed by that organization would be no easy matter, if it were feasible at all. It is, therefore, worth a major effort to ensure that the ITU continues both to be a viable and credible institution, from our point of view as well as from others.

The 1985 Space WARC provided good evidence, although no future guarantee, that the United States can protect its interests even in a highly politicized one-nation, one-vote decision-making process. By combining the resources and creativity of both industry and government experts, the United States was able in this case to develop, and to convince the rest of the world to adopt, a formula which meets the fundamental concerns expressed by developing countries while protecting the key interests of the United States.

The use of the "expansion bands" to permit the application of the special orbit and spectrum planning criteria advocated by developing countries was an extremely convenient and resourceful solution to the most immediate problem we faced, namely how to keep a priori planning and its progeny out of the primary frequency bands which we use in this country.

The United States Delegation succeeded in that goal, and the importance of that accomplishment should not be understated. Six months ago we faced a high-speed political locomotive heading down the tracks directly at the heart of U.S. private

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and Government satellite systems. Through an extraordinary effort, Ambassador Burch and the Delegation succeeded in finding an alternative but still substantial destination for that train, persuaded the locomotive's engineers (and there were many) that a change of course was in the best interests, and kept our own options intact, all without destroying the road bed in the process.

We emerged from the battle surprisingly intact, but the struggle clearly continues. Both private industry and the Government must turn attention now to the next phase, which is how to prepare for the second session of the Space WARC, scheduled for 1988.

The good news from the 1985 WARC was that the frequency bands of greatest importance to the United States will not be subject to a priori or allotment planning. The bad news was there was no agreement on the details of the allotment plans which will be applied to the new "expansion bands," and that there is a continuing threat to revisit treatment of the 20/30 GHz bands. Those bands are lightly used now but will definitely become a resource of major importance to the United States in the future. A heavy burden is imposed both on the ITU and on interested Administrations to do an extensive amount or work between now and 1988 if we are to develop a broad consensus on how to proceed. It is important both to the United States and to the ITU that the second session of the Space WARC is prepared to make decisions which can gain general acceptance, and at the present time there remain large gaps among the views of different Administrations.

The United States faces a substantial challenge in this process. To protect our interests and to preserve the advantages of the ITU, the United States must improve our understanding and ability to deal effectively in a politicized one-nation, one-vote environment. In addition, we must be prepared to deal effectively with the ITU Secretariat to ensure to the greatest extent feasible that the positions taken by that institution are compatible with U.S. interests.

For example, the United States should be prepared to participate actively and extensively in the intersessional work requested by the 1985 Conference. Extensive participation in the intersessional work of the Space WARC does not mean that we have to assist others in developing plans which are inimical to our national interests. Quite to the contrary, it means that it we intend to protect our interests, we better be involved in the process which is going to deal with them whether we are there or not. It means that the Government must have available the manpower and the funds which are required to protect United States interests, and it means that we must have sufficient discipline to participate in the planning process without being co-opted by it.

The United States must also continue to come to terms with the fact that the international regulations of telecommunications services and standards is no longer simply an arcane technical phenomenon. It has joined the ranks of major political contests with vital national interests at stake, particularly for this country, and we must deal with the issues accordingly.

During the last few years there has been a substantial increase in the amount of effort and in the breadth of expertise which both Government agencies and the private sector have focused on these issues in general, and on preparations for the recent conference in particular. Those efforts were critical to our sucess, and they must be continued.

As part of our program for dealing effectively in this environment, the United States must also face the facts that decision-making in the ITU is increasingly becoming a process of political maneuvering and trade-offs, rather than the traditional debate over engineering and operational standards and criteria.

The particular problem raised by this development is that in the area of satellite telecommunications the United States and a few others have a great deal at stake, while the proponents of dramatic change have little or nothing to lose. This leads to the type of negotiating atmosphere which we witnessed at the first session of the Space WARC, in which there was virtually no interest among many developing countries in working out a compromise, and in which the useful work of the Conference was effectively precluded by the constant insistence on extremes.

To protect our interests in such a negotiation, it is essential that we ensure in the future that both sides have something at stake. In a negotiation over the right to use orbital positions, for example, the United States potentially has a great deal to lose from the imposition of new costs and constraints. Countries with no plans to use the orbit in the foreseeable future have virtually nothing to lose, and hence, as we saw in Geneva, have little incentive to compromise.

We need not simply resign ourselves to that dilemma. On a country-by-country basis we can and should review the full range of areas where others depend on or want something from us, both within and outside of the telecommunications field.

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We can, implicitly and explicitly, convey the message to others that telecommunications products and services are of major importance to the United States, and that those interests cannot be threatened or harmed without cost in return.

We need not be heavy-handed in this process. We simply need to be clear, and to have done our homework. We should, for example, continue to bolster the present programs for building expertise in telecommunications issues among our Embassies in other countries, and we should make telecommunications a regular subject for general discussion with the Ministry of Foreign Affairs as well as with the local telecommunications authorities. It is, after all, generally the developing countries' Foreign Affairs experts who are introducing the political demands into the debate in the first place. Most of all, we must and can be prepared to act on our convictions.

The United States and other industrialized nations, the developing countries, and the ITU as an institution, are all entering a critical new period. By definition, telecommunications services require effective international coordination and cooperation if those services are to be widely available at a reasonable cost. We have, perhaps inevitably, entered a new era in the ITU where global politics will from time to time threaten havoc with our traditional notions of how to manage those telecommunications resources.

Rather than turning away from that forum because of the increased difficulty in doing business there, however, we should first learn how to play the new game better. Because our stakes are major and still growing, we must match the new challenges being raised in the ITU with increased effort, creativity and determination. We need the ITU to continue to provide its extremely valuable services to the United States and to the world community. And we need to ensure in that process that United States national interests are well protected. We must and we can do both, if Government and industry will devote adequate resources and attention to the task.

Senator GORTON. Thank you very much.

Mr. Weiss.

Mr. WEISS. Mr. Chairman this is a distinct honor, to have been invited to testify before these subcommittees.

I will summarize my testimony in very brief form here and, with your permission, will submit a more detailed statement.

Senator GORTON. It will be included in the record.

Mr. WEISS. Thank you.

My name is Hans Weiss. I am senior director of the Communications Satellite Corp. on R&D policy and ITU matters. My expertise is mostly technical, and I participated as a U.S. delegate in many previous conferences. I would like to concur with Ambassador Burch's summary of the accomplishments. They are positive. I feel so also.

I will not go through the details of them, but I would like to concentrate on three points which I think the United States will have to face in the intersessional period and in fact at the second session.

The first point relates to the upper expansion bands, the 13/11 gigahertz bands. We have to be quite sure whether we can establish exactly the needs of the United States in these bands, and we will have to seek means of gaining access to these bands in spite of the a priori planning that has been agreed, and there may be avenues to do so.

The second item is the 20/30 gigahertz band. At the moment, it is not a critical issue, but the band has been earmarked as a potential candidate for future a priori planning. We have to prevent that this ever takes place, and I think we should start with preventing that at the 1988 conference so that this matter does not even reappear on the agenda.

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Finally, Mr. Chairman, we will have a new set of procedures which we have not yet well defined, which we are still talking about. We have to be very sure that these new procedures do not become a burden to the United States. They may be accompanied by the adoption of new standards, new constraints, and perhaps certain conflict resolution provisions. It is absolutely necessary that these be decisions, when they are finally made, that we can live with. One concrete example of what might be at stake under these new procedures is the reduced orbital spacing order of the Federal Communications Commission. As you know, the Federal Communications Commission is trying to establish a 2 degree spacing between domestic satellites.

The United States should formulate its own agenda mainly around these three questions. It is important here to recognize that in principle the second session could overturn most of the decisions of the first session. That is a risk, but at the same time it might also be an opportunity. And I think the most obvious candidate decision of the first conference is the form of a priori planning that is to be adopted in the upper expansion bands, the 13/11 gigahertz expansion band. Overturning or softening this decision might be one of the major objectives of the United States at the second conference.

The orbital spectrum is a nondepletable resource. It is not used up. It stays there regardless of what happens, and it is unreasonble to accept that a nondepletable resource should just be sitting there without providing any benefits.

In pursuing our own agenda, as well as the official agenda that has been prescribed for us for the second session, during the intersessional period the United States should draw as much as possible on the mechanisms, expertise, and support that are in place, that it has drawn upon for this first conference session.

The United States will have to focus on technical and regulatory details because these got very short shrift at the first session. I have to agree with Mr. Stowe that political issues will continue to be with us, but I think the existing U.S. arrangements are very well capable of dealing with the technical as well as the political issues.

The views which I expressed briefly here are detailed in my written statement, and I would be pleased to answer your questions.

Thank you, Mr. Chairman.

[The statement follows:]

STATEMENT OF HANS WEISS, COMMUNICATIONS SATELLITE CORPORATION [COMSAT]

Mr. Chairman and members of the committee, it is a distinct honor and a privilege to have been invited to testify before these Subcommittees on the recently concluded first session of the Space Conference (WARC-ORB (1), or "Space WARC").

My name is Hans J. Weiss; I am Senior Director, R&D Policy and ITU Matters, Communications Satellite Corporation, Washington, DC (COMSAT). My expertise is largely technical. My duties at COMSAT have, over the years, spanned a broad range of disciplines in the field of satellite communications. Throughout my career at COMSAT I have been intimately involved in matters relating to domestic and international rule making and standard setting. I have represented the United States of America in numerous international Conferences under the auspices of the International Telecommunication Union (ITU), most recently as U.S. Chairman of one of its Consultative Committees (Study Group 4 of the CCIR).

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The Space WARC on which I am testifying as one of the private sector U.S. delegates is the consequence of a Resolution adopted at a World Administrative Radio Conference [1] held in 1979 (WARC–79). The Resolution had been proposed and carried by a voting majority of mostly developing countries. It reflects concern with the preemptive occupation of the geostationary orbit by the rapidly growing number of satellites of industrial nations, perceived as making it increasingly more difficult, perhaps ultimately impossible for developing nations to put up satellites at a later time when they might wish or need to satisfy their telecommunications requirements.[2] Intensive efforts by industrial nations to allay this concern and to forestall the adoption of measures which would severely constrain further orbit development to satisfy current pressing needs were unsuccessful.

In a sweeping repudiation of countervailing arguments, the adopted Resolution stipulates "to guarantee in practice for all countries equitable access to the geostationary-satellite orbit and the frequency bands allocated to space services." Addressing all space services and frequency bands, the Resolution calls for an implementation of this stipulation through planning or—a hotly fought-over clause—"other possible approaches," at a World Space Administrative Radio Conference comprising two sessions: WARC–ORB.[3] Proponents and supporters of the Resolution made it clear from the outset that the only form of guarantee acceptable to them would be a plan which identified, for each nation, specific viable [4] orbit locations. For many well documented reasons such "a-priori" planning was and continues to be strongly opposed by industrial nations.

The Conference agenda, besides its primary "access guarantee" thrust, contained three ancillary items which required action by a "competent" Administrative Radio Conference:

Preparations for the planning of feeder links for the 1977 broadcasting-satellite plan in ITU Regions 1 and 3 (all countries but the Americas which were not affected);

The incorporation, in the Radio Regulations, of a plan for the broadcasting-satellite service (BSS) which was developed by a regional Conference in 1983 for ITU Region 2 (the Americas);

The disposition of a Resolution which called for an examination of the feasibility of providing sound broadcasting from space in the frequency range 500 to 2000 MHz.

U.S. objectives were to incorporate the Region 2 BSS plan, and to keep the Resolution on space sound broadcasting alive for further study.

Since the just concluded Conference was only the first session of WARC–ORB, the following comments will not only be a "post mortem" but will address matters relating to the second session. It would seem appropriate, however, to commence with a brief review of the Conference outcome.

RESULTS OF WARC-ORB (1)—ASSESSMENT

The major decisions of the Conference were the following: That only the fixed-satellite service (out of 15 or so space services) should be subjected to planning; that planning should take two forms:

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[1] An Administrative Radio Conference constitutes the highest executive authority of the ITU. It is convened according to need, sometimes with a limited agenda (e.g., space) or a limited scope (e.g., regional), but always with the objective of amending the Radio Regulations which, having international treaty status, provide for the orderly use and development of the radio frequency spectrum and are a code of interaction among user nations of the spectrum. WARC–79 was the most recent global ("World") Administrative RAdio Conference with the broadest mandate to update the Radio Regulations, in particular the Table of Frequency Allocations which prescribes the international use of frequencies for a variety of "services" as defined by the ITU and having technical characteristics distinct from each other.

[2] This concern had its origin in practical difficulties already experienced by some countries in obtaining desired interference-free orbit locations, as well as in theoretical studies which, while showing a large potential geostationary orbit capacity, nevertheless found the orbit to have "room" for only a limited number of satellites, particularly in frequency bands considered economically attractive.

[3] The first session, WARC–ORB (1), the subject of this testimony, was to decide on the frequency bands and services in which to provide the sought guarantee, and on the form the guarantee should take; the second session, WARC–ORB (2), now scheduled for 1988, is to spell out the guarantee in detail and to put it in force.

[4] Orbit locations at which real satellites would neither sustain nor cause unacceptable interference.

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(a) the adoption of an allotment plan [5] of frequencies, service areas [6], orbit locations and associated orbital arcs [7] in certain frequency bands known as "expansion" bands;

(b) the use of improved [access] procedures [8] to be used within the fixed-satellite service [FSS] only, in certain other ("regular") frequency bands (table I);

Table I

"Planned" Frequency Bands

A. Frequency bands subject to the allotment plan (so-called "expansion" bands):

4500-4800 MHz
6425-7075 MHz (300 MHz thereof),
10.7-10.95 GHz,
11.2-11.45 GHz, and
12.75-13.25 GHz.

B. Frequency bands subject to the improved procedures:

3700-4200 MHz,
5850-6425 MHz,
10.95-11.2 GHz,
11.45-11.7 GHz,
11.7-12.2 GHz (ITU Region 2: the Americas),
12.5-12.75 GHz (ITU Regions 1 and 3: all other territory),
14.0-14.5 GHz,
18.1-20.2 GHz, and
27.0-30.0 GHz.

That both forms of planning should comply with a number of "planning principles" of which those of greatest significance for the U.S. are (as paraphrased): (a) Accommodation, if necessary with adjustments, of existing [9] systems; in the case of the allotment plan on an equal footing with the allotments; (b) accommodation of multiadministration systems, recognizing their need for continuity of service and

[5] In principle "allotment" planning refers to the conferral of rights to use certain frequencies and, in this case, orbit locations, in contrast to "assignment" planning by which frequencies and orbit locations are directly recorded. There continues to be confusion over the precise meaning of these terms.

[6] Generally the entire territory of a country but, for large countries, parts of their territories; in some cases overseas territories.

[7] Orbital arcs within which a satellite may actually be located and including the nominal plan location.

[8] The Conference identified as a preferred improved procedure the periodic convening of multilateral planning meetings [MPM's] to accommodate new requirements.

[9] Systems for which information under the applicable procedures had been received by the International Frequency Registration Board [IFRB] prior to 8 August 1985.

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their specific characteristics, but without affecting the rights of national systems; (c) accommdation of . . . proven as well as advanced technologies; (d) ensure economical and efficient use of the orbit and frequency bands; (e) accommodation of multiband and multi-service systems;

That the 30/20 GHz bands should be examined with a view to deciding, at a future competent Conference, whether they should become the subject of a plan;

That the 1983 Region 2 BSS plan should be incorporated in the Radio Regulations;

That studies should continue under the Resolution relating to space sound broadcasting.

Other documentation that emerged from the Conference is of a consequential nature. It includes regulatory guidelines for the two planning approaches, guidelines for intersessional studies, instructions to the IFRB in relation to allotment planning, and a draft agenda for WARC-ORB (2).

Table II shows a comparison of major Conference decisions with corresponding U.S. proposals or positions. In nearly all cases the Conference decisions correspond to either the U.S. objectives or to what had been anticipated as likely concessionary but acceptable outcomes. The fundamental U.S. opposition to any form of a-priori planning, defeated as per items 2 and 3 of Table II, had been inherently weak in light of the U.S. proposals to provide for long-term requirements in the 6/4 GHz "expansion" bands [10], with an understanding that the 14/11 GHz expansion bands might have to be dealt, with in the same way. Since neither expansion band is authorized for domestic use in the U.S., the defeat was on principle, not on substance.

There is further congruence, either literally or in intent, between the U.S. position and the Confrence decisions on other more detailed elements, in what was adopted as well as in what was not adopted. In fact, there are only two areas in which the U.S. was not, in substance, successful: In the express recognition of the specific characteristics of intergovernmental multiadministration systems; in the earmarking of the 30/20 GHz band for potential future subjection to a plan (not an immediate problem).

[10] Buttressed by a proposed selfimposed moratorium on the use of the affected 6/4 GHz "expansion" band, a now defunct U.S. offer.

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Table II

U.S. Proposal/Position	Decision
1. Consider only the FSS.	Same.
2. Provide for long term requirements in the 6/4 GHz expansion bands.	Equivalent (allotment plan).
3. If necessary, provide for long term requirements in the 13/11 GHz expansion bands. These bands are not authorized for U.S. domestic systems. Moreover, those bands were allocated by WARC-79 to the FSS only over U.S. opposition.	Equivalent under fall-back position (allotment plan).
4. Multilateral planning meetings (MPMs) in "regular" bands below 15 GHz.	Same.
5. No planning in bands above 15 GHz but MPM was considered a possibility at 30/20 GHz.	30/20 GHz earmarked for possible future planning.
6. No consideration of FSS bands at 3.4-3.7 and at 8/7 GHz.	Same.
7. Existing systems accommodation.	Same.
8. Multiadministrations systems parity.	Partially reaffirmed.
9. Advanced technology accommodation.	Same.
10. Efficient orbit use.	Same.
11. Multi-band, -service systems.	Same.
12. Continuation of sound space broadcasting studies.	Same.
13. Incorporation of the Region 2 BSS plan.	Same.

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In the former case the U.S. wanted a flat parity between all systems, regardless of their purpose or ownership, in support of the President's determination on international-service systems separate from INTELSAT. There is a U.S. protocol statement on this matter.

In the latter case, the U.S. wanted the 30/20 GHz bands entirely unencumbered; the Conference decision could lead to an unwelcome reopening of the matter at WARC-ORB (2).

On the other hand, and perhaps instrumental in confining a-priori planning to frequency bands in which the U.S. has no stake, the U.S. proposals relating to multilateral planning meetings [11] were not only accepted in principle, but much in the form in which they were presented. It is expected that the MPM procedure will be aided by two important concepts introduced by the U.S.: an interference assessment method known as the isolation approach, and the concept of burden sharing.

On the whole, therefore, the Conference outcome can with justification be considered a success for the United States, as further elaborated on below.

COMMENTS ON WARC-ORB (1)

There is an excellent concise reference report on WARC-ORB (1)[12] which precedes it but anticipates many of the issues and poses cogent and pertinent questions which can now be answered. The report also suggests an organization for these comments.

PREPARATIONS FOR WARC-ORB (1)

U.S. preparations for WARC-ORB(1) were elaborate, comprehensive and painstaking. They had to deal not only with WARC-ORB(1) proper but also with an essentially technical Conference Preparatory Meeting [CPM][13] of CCIR Study Groups in 1984. Table III lists the major preparatory activities that led to WARC-ORB(1). All of the activities listed in Table III were separate but coordinated, producing an enormous amount of information.

Not surprising, most of the information compiled was never directly used. However, its availability led to three kinds of documentation:

(a) The U.S. proposals (those originally susbmitted as well as those submitted during the Conference);

(b) The U.S. positions on which the U.S. delegation could, and did, draw for guidance during the Conference;

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[11] Multilateral planning meetings continue essentially the current procedure of obtaining an orbit location through consultation among affected administrations, but rather than having several bilateral consultations one after the other, all affected parties would meet simultaneously on a relatively infrequent regular basis.

[12] Patricia E. Humphlett, "Use of the Geostationary Orbit . . .", Report No. 85-105 SPR, Congressional Research Service, The Library of Congress, 1 May 1985.

[13] The CPM, in turn, drew largely on material prepared by an international Interim Working Party (IWP 4/1) of CCIR Study Group 4 held earlier. Relatively little new material was added by administrations at CPM. IWP 4/1 continues to be of importance for the development of technical material.

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Table III

U.S. Preparatory Activities for WARC-ORB(1)

Formation of a Space WARC Industry Advisory Committee (SWAC);

Intensification of U.S. work in support of an international Interim Working Party (IWP 4/1) of CCIR;

Preparation for and participation in a Conference Preparatory Meeting (CPM) of CCIR Study Groups;

Formation of a U.S. core delegation for WARC-ORB(1) to coordinate preparations;

Incorporation of studies and assessments from Subcommittee Ad Hoc 178 of the Interdepartment Radio Advisory Committee (IRAC);

Participation in three ITU seminars (Bangkok, Buenos Aries and Nairobi) and in a CITEL meeting (periodically held among American states);

Participation in numerous international bilateral meetings throughout the world, for a preliminary exchange of views;

Development of detailed U.S. positions on every identifiable potential issue;

Development of the U.S. proposals.

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(c) Analyses of the likely positions of other administrations, a guide for focusing effort during the Conference.

Among the listed preparatory activities there were only two which were not essentially dictated by events and thus might conceivably not have been undertaken: the formation of SWAC and the international bilateral meetings; to all others the U.S. was committed for practical reasons.

SWAC

The experience with the Space WARC Advisory Committee answers positively some of the questions regarding private sector participation in the WARC–ORB proceedings:

Industry wholeheartedly participated in these efforts, partly for business reasons, partly because of a keen interest of individuals in contributing to the U.S. effort;

SWAC served as an informed forum for the promulgation of industry concerns and knowledge—realities and limits of technology, broad technical information, new ideas on methods and procedures, the role and impact of standards and constraints, the identification of conflicts;

The U.S. drew on SWAC for most of the private sector members of the U.S. delegation: individuals with pertinent knowledge, familiarity with the issues and a broader range of expertise than found in the conduct of regular ITU activities which are of predominantly technical nature.

As it turned out, private sector contributions provided many new ideas and laid much of the detailed groundwork on which the U.S. proposals were subsequently based. Private sector delegates were also instrumental in getting many of the U.S.'s points across at WARC–ORB(1), particularly those delgates who, without SWAC, might not have been at the Conference, i.e., those having expertise outside of the technical areas.

The SWAC has, thus proven itself a valuable strategic and tactical tool for the U.S.

Bilaterals

International bilateral meetings have been held before many previous conferences. They have come to be expected by many countries; so much so that there may be a negative political impact when a country is bypassed.

Bilaterals establish rapport on the personal level and provide a fair amount of detailed information, even though the basic views of countries are generally quite well known beforehand through other less formal channels, a sort of pre-conference osmosis.[14] In any case, the United States as the most important industrial nation in the world today has an external responsibility to put forth sound and comprehensive proposals, as it has a clear internal obligation to do so in pursuit of its own interests which are manifold and complex, especially in the area of communications. Thus, the bilateral meetings are an important mechanism by which other administrations may be made familiar with the details of and reasons for U.S. views.

There is perhaps one area in which the benefits from bilaterals could conceivably be enhanced: in the forging of stronger alliances on certain issues that hold up during a conference. During WARC–ORB(1) a noticeable softening or divergence of the attitudes of too many industrial countries repeatedly left the United States on its own. There is little doubt, though, that the mutural understanding established between the United States and many other administrations through the bilaterals provided a favorable background for the acceptance of U.S. views.

Other questions on U.S. Conference preparation have been raised in connection with the U.S. delegation and the formulation of the U.S. position and proposals.

U.S. Delegation/Positions/Proposals

The U.S. core delegation, formed perhaps somewhat late, had the tasks of coordinating the bilateral meetings, preparing the U.S. positions and country assessments, and preparing the U.S. proposals.

The core delegation: Comprised Government representatives with identified Conference responsibilities, and both Government and Private Sector individuals who had been leaders in prior preparatory efforts; worked under a fairly rigid discipline, with weekly meetings and work assignments; was able to rely on detailed outputs from a number of working groups managed by it but staffed by non-core group private sector participants who were earmarked to be subsequently part of the full

[14] There was a broad exchange of views during the CPM which, in many respects, was a virtual dress rehearsal of WARC–ORB(1).

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U.S. delegation; and, in view of this, could concentrate on administrative matters and on decision making while being able to draw on essentially the full delegation.

U.S. positions and country assessments were worked out by the working groups, and were reviewed, fine tuned and validated by the core group.

The preparation of the U.S. proposals was done within the core group, but they were, upon completion, made public prior to submission. In all stages, the private sector was given every opportunity to participate and comment on all matters potentially affecting it.

The core delegation approach, based not on exclusionary motives, but on normal management principles was an effective and efficient mode of working and its use for future conferences can be endorsed.

The only possible enhancement of the delegation forming process for future conferences may be a direct request, by Government, for the commitment of specific private sector individuals of known relevant competence where such individuals might bring with them otherwise not available discipline, expertise or competence level. This approach might be coupled with the recruiting of minority representatives and women where the "natural" delegation forming process if unsatisfactory in that regard.

Continuity in U.S. conference participation

The question of continuity in U.S. conference participation has been raised. This question can be posed on three levels: continuity on the individual level, continuity of expertise and competence, and continuity of policy.

As far as existing U.S. telecommunications policy is concerned, the only problem of maintaining continuity in its observance would appear to be that a challenge to it by a Conference issue or development be recognized so that an appropriate response can be formulated. It must be presumed that major U.S. telecommunications policy is a matter of record and not something that relies on individual's recollection. On the other hand, policy which is developed to deal with the issues of a specific Conference is, ipso facto, new policy for everyone; the question of continuity does not arise.

However, continuity in experience and skills, vested in individuals and, potentially, in government and private sector organizational elements, is highly desirable and worthy of systematic preservation and enhancement. Among the means to achieve this:

Repeat attendance. Every effort should be made to reenlist individuals with successful prior relevant experience and give them visible roles to provide an on-the-job training opportunity for others;

Handover mechanisms. The grooming of successors and their participation in conferences, their training in skills and tactics,[15] and the maintenance of records on key decisions and their geneses, within responsible government offices;

Private sector involvement. To broaden the base from which to draw on experienced individuals, every effort should be made to increase the enlistment and reenlistment of private sector participants not only in conferences but in ITU activities between conferences (notably the CCIR) which deal with related subjects and are, after all, also international meetings. In recent years the U.S. has become more sympathetic to wider and more responsible private sector involvement in international activities, to my knowledge, without regrets;

Central office; guidelines. Maintaining a central government conference responsibility, coordinator of conferences and keeper of written and updated guidelines, is a further possibility to enhance continuity. The office of the U.S. Coordinator might be a prototype.

The U.S. delegation to WARC-ORB(1) represented substantial continuity, even of the personal kind, because of the very protracted nascence of the Conference, its high visibility and importance, and its close relationship with long term ITU activities. However, the U.S. delegation also benefited from highly competent and active participants with little or no prior conference experience.

IMPACT ON THE U.S. OF WARC-ORB (1)

There is relatively little negative impact of WARC-ORB(1) on the U.S.—a measure of success:

[15] Prior to WARC-ORB (1), NTIA organized a seminar on negotiating at international conferences. Subtracting some simplistic and entertainment oriented elements of the seminar, and expanding on the empirical content, there is a fair amount of not obvious information and facts to be gained.

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On U.S. Government

The most immediate impact is due to allotment planning in the expansion bands in which the U.S. has authorized one international system. While this system will be accommodated as an "existing" system, unilateral authorization by the U.S. of additional such systems is in question. WARC-ORB(1) provides for "additional requirements" over and above those reflected in the allotment plan, but the degree to which it is feasible to invoke this provision will depend on the plan characteristics.

Domestic U.S. orbit development will not be affected since the expansion bands are not now authorized for domestic use.

Of potential concern is the adoption of "improved procedures" for the accommodation of new systems in the regular frequency bands of the fixed-satellite service. This implies a new responsibility for the U.S. which, while based on U.S. proposals, will require substantial work prior to WARC-ORB(2) to lead to procedures that are not unduly demanding or constraining. The U.S has a substantial stake in the matter, in the form of its rule on reduced orbital spacing (the "2° spacing" initiative of the FCC), which could be affected.

On the U.S. equipment industry

There is no direct immediate impact since the decisions of WARC-ORB(1) do not affect the characteristics of existing or new systems, nor the number of new systems that may come into being.

However, WARC-ORB(2) may move to adopt new standards or constraints which could have an impact. Careful U.S. preparatory efforts during the intersessional period may serve to guide decisions in favor of U.S. preferences in this area.

On the U.S. user industry

The main effect of WARC-ORB on the user industry will be due to whatever standards, constraints, and "improved procedures" may be adopted by the second session. It is therefore essential that the industry concern itself with the development of the U.S. proposals for these matters during the intersessional period.

To the extent that the U.S. user industry would seek access to the expansion bands with new international systems, this would still be possible if authorized by the FCC. However, such new systems may not be accommodated in the allotment plan, and it is not clear that the IFRB would have the authority to register such systems.

Thus, there is relatively little immediate impact of WARC-ORB(1) on the status quo of the fixed-satellite service as far as the U.S. is concerned. However, the future of the service as far as the U.S. is concerned. However, the future of the service will be affected by decisions to be taken at WARC-ORB(2). This suggests that the U.S. make all necessary effort not only to limit negative consequences of decisions taken but to hold the line on these decisions, perhaps to soften some of them. In principle, WARC-ORB(2) can overturn most of the WARC-ORB(1) decisions; this fact could work against the U.S., but it is also an opportunity to gain some improvement.

IMPACT ON INTELSAT

Throughout the Conference there was widespread support for INTELSAT on the part of many industrial as well as developing countries. This support found its expression in a special reference to multi-administration systems "created by intergovernmental agreement and used collectively", coupled with a recognition of their "specific characteristics" and a provision for their accommodation in planning.

This reflects the success of the U.S. created Intelsat system and is a reaction to what is perceived as U.S. government policy to weaken Intelsat. While Intelsat is not negatively affected by the decisions of WARC-ORB (1), it could well lose its potential for moderating the most constraining efforts of allotment planning in the future. With allotment planning now all but a fait accompli, another look at Intelsat from that point of view may be appropriate.

ADDITIONAL COMMENTS

There are several issues and considerations relating to WARC-ORB which are unrelated to each other but seem worth commenting upon.

Private sector role/concerns

While the U.S. pursues policies in furtherance of the U.S. public benefit, such benefit flows from the initiatives and options of the private sector industry. It is

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therefore both appropriate and effective to have the private sector intimately involved in all Conference proceedings.

In the case of WARC-ORB, the private sector has been instrumental in validating U.S. proposals with regard to technology, methods and procedures, and business options and goals. While private sector views were most directly injected through the participation of individuals, there was opportunity for broader review and comment from the private sector as a whole.

By and large there was internal consensus. However, in regard to international systems separate from Intelsat, the U.S. Government was bound to uphold the President's determination. The resulting intra-delegation conflict was never apparent to the outside. This discipline was facilitated by a clause in the confirmation letter to private sector delegates which exempted them from presenting "any opinion or information . . . inappropriate or prejudicial to the . . . interests of [their] employing or client organization[s]." On the other hand, there was full opportunity to present views in Conference preparation and at delegation meetings by which U.S. policy objectives could be formulated in such a way as to result in outside acceptance.

Technical aspects/technology

In spite of the fact that the whole question of accommodating satellites in orbit is predominantly technical and that much of the preparation for WARC-ORB (1) was technical in nature, the Conference was essentially non-technical. What technical arguments were used found a highly selective response: those supporting the majority view were accepted, those in potential conflict with majority objectives were simply rejected out of hand. It was clear that proponents of a-priori planning, even where they might have appreciated technical arguments, were not concerned with making planning work in practice, merely with bringing it about.

It can only be hoped that WARC-ORB (2) will be less sanguine with regard to the reality of an allotment plan. However, it is vitally important for the U.S. that in those frequency bands not subject to allotment planning technical realities be faced and addressed.

The U.S. has always been on the side of improved technology, not as an objective but as a means. At this stage there is no threat that the U.S. will be forced into an unacceptably stringent technological straightjacket; on the contrary, the trend is towards relaxed standards. But either direction may pose problems—unduly stringent demands on technology may lead to unnecessary cost penalties; relaxed technology to inefficient orbit utilization and to a failure of the U.S. proposed regulatory "improved procedures" to accommodate new systems.

This emphasizes the importance of intersessional technical work for the U.S. in which it must be recognized that, ultimately, whatever WARC-ORB (2) produces, will have to be put in practice under the lowest common denominator: a workable technical solution.

TOWARD WARC-ORB (2)

For WARC-ORB (2) the U.S. would appear to have the following major objectives: To prevent the overturning of WARC-ORB (1) decisions in favor of more constraining decisions; to renew attempts to delete or soften some of the most undesirable decisions of WARC-ORB (1); to maximize opportunities for potential future U.S. use of the expansion bands, if considered desirable. Part of U.S. industry may favor this; to seek a formulation of the "improved procedures" that is workable and is not in conflict with U.S. policies (e.g., the "2° spacing" initiative of the FCC); to identify and gain acceptance for techniques, standards, constraints and methods favored by the U.S. and to prevent adoption of those counter to U.S. interests.

The international framework for the 1988 WARC-ORB(2) preparation comprises: At least one, probably two meetings of the international Interim Working Party IWP 4/1 of CCIR Study Group 4, the first to be held during early 1986; two meetings of an international Joint Interim Working Party (JIWP) of concerned CCIR Study Groups; one interim meeting of CCIR Study Groups in late 1987.

There is a decision listing the work elements for these international meetings. However, they are all meetings of the CCIR, an essentially technical organ of the ITU. It is not entirely clear how political and regulatory questions will be addressed within the CCIR.

Nevertheless, U.S. preparations should ignore this apparent limitation of the competence of CCIR; they should develop and introduce, during the intersessional work, all elements that might make up eventual U.S. proposals to WARC-ORB(2), much as was done in preparatory activities for WARC-ORB(1).

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The U.S., in preparing for and participating in the above international intersessional activities, should draw on broadest private sector participation; e.g., by reactivating the Space WARC Advisory Committee [SWAC]. It may also wish to establish early a degree of continuity by seeking to compose its delegation to the second JIWP meeting as much as possible of individuals ear-marked to participate in the second session, WARC-ORB(2).

A special stance may have to be taken with respect to the development of the allotment plan. The IFBR has been tasked with developing the software for it and to mount at least two planning exercises. It is, at the moment, probable that this is beyond the resources of the IFRB within the available 3-year period. The IFRB may thus fall back on what appears to be the only currently available software directly capable of the task: a Japanese program. The U.S. may wish to seek access to the IFRB work in order to ensure its appropriateness as the basis for allotment planning.

Further, given the WARC-ORB(2) is not bound by most of the decisions of the first session, the U.S. may contemplate to seek a reversal or softening of allotment planning in the 12/11 GHz bands. To do so it may:

Attempt to broaden the provision for "additional requirements" in the 13/11 GHz allotment plan with the notion of "alternative requirements", under the premise that use of a non-depletable resource should not be denied in the absence of actual conflict;

Revisit a form of allotment planning in which no orbit locations but overlapping orbital arcs would be allotted. Each country would be guaranteed an undertermined orbit location in its arc, to be activated upon demand. This would require the availability of software with which periodically to test the continued viability of the as yet non-invoked guarantees;

Reconsider promoting the use of "reverse band working", a method to increase the number of accesses to the orbit which, in controlled fashion, could greatly reduce the danger of premature orbit saturation.

These last two techniques were proposed at WARC-ORB(1); their rejection has neither diminished their viability nor their value.

Finally, the U.S. may wish to develop arguments against future allotment planning of the 30/20 GHz bands which WARC-ORB(2) has been requested to take into consideration.

[The following information was subsequently received for the record:]

QUESTIONS OF SENATOR GORTON AND THE ANSWERS

Question. Why are we willing to plan the expansion bands; Don't we need them? Is the K_u band more important than the C band?

Answer. The United States maintained throughout the first session of the Space WARC that it opposes rigid a priori planning. This position is reflected in a protocol declaration in which the United States, inter alia, announces its intention of using any frequency band allocated to the fixed-satellite service in whatever manner it sees fit, subject only to relevant provisions of the ITU Convention. This is a little-veiled indication that we might disregard an actual a priori plan, having been unsuccessful in what were intensive and persistent attempts on our part to prevent the adoption of allotment plans, at least in the K_u bands. We are thus clearly on record as not being willing to plan the expansion bands.

The unilateral protocol declaration which we were forced to make after finding it impossible to secure consensus (let alone win a vote) against allotment planning is not necessarily the ineffectual protest associated with a lost cause. First of all, the Space WARC is not over yet and we have an opportunity to revisit our arguments and those of others. Moreover, the form of allotment planning has not been precisely defined and may still be amenable to detailed interpretation in a manner which need not result in, to us anathematical, rigid a priori planning.

However, even failing to reverse, limit or soften the current decision on allotment planning, the United States may find it practical to maintain its reservation at the second Conference session and subsequently act on it, preferably in concert with other dissenting administrations. There are certain realities which would tend to render such policy technically viable:

Orbital allotments to most South American countries can probably be technically decoupled from orbital assignments to the three North American countries, Canada, Mexico, and the United States. Technical standards as currently favored by developing countries are fairly relaxed and should result in a plan which leaves access op-

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tions for systems having more advanced technical characteristics of the kind the United States would be able and willing to use. Thus, for each South American allotment at least one North American assignment should be possible, with acceptable technical risk. Agreement on North American assignments would be necessary among the three countries, but this would be required even without a plan.

Each Central American and Caribbean country will probably be given an allotment, but only a small fraction of these would, within the foreseeable future, be converted to assignments, i.e., be used to accommodate real satellites; the risk of an actual conflict is small and may be altogether avoidable by negotiation.

Joint (multinational) payloads serving the domestic needs of the U.S. and of one or more other countries may be an attractive cost-effective source of orbit capacity for some administrations, even in the long term. Such use of the orbit would blur the distinction between a plan assignment and an assignment outside the plan, particularly if a plan recognizes, in principle, the need for flexibility and for the accommodation of "additional" or "alternative" requirements.

Although the United States might have to act in derogation of the provisions for the use of the allotment plan, it could offer to draw on coordination and consultation procedures which are and remain in place for frequency bands not subject to allotment planning. Under these procedures, even when applied partially and unilaterally, appropriate protection could be provided for the real systems of other administrations.

The point made by the above is that if the U.S. wished to use the expansion bands to satisfy its requirements while disregarding any plan that might exist, it could probably do so with little or no international consultation and without running technical risks for many years.

On the other hand, such use of the expansion bands by the United States should be expected to engender two kinds of diplomatic difficulties: those relating to conflicts between plan allocations and U.S. assignments, and those relating to real technical conflicts between assignments that conform to the plan and U.S. assignments outside the plan. In the former case the conflict is not real, i.e., no actual interference between systems is at issue. In the latter case the difficulty might be two-fold: refusal of an administration to consult at all on a non-plan assignment or, where there is willingness to consult, resistance to accede to mutual accommodation. Moreover, unless provisions were made for the registration of non-plan assignments in planned banks, the International Frequency Registration Board [IFRB] would not be in a position to register such assignments.

It is essential that the United States examine these potential consequences of a dissenting policy, decide whether to lend Government support to its invocation by the private sector, and establish the limits of such support.

Answers to whether we need the expansion bands and whether the K_u expansion bands are more important than the C expansion bands must give recognition to the U.S. regulatory situation.

In principle, barring regulatory constraints, and to judge from past experience, there would probably be high private sector demand for both kinds of expansion bands within the foreseeable future. From the technical point of view, the two kinds of bands are about equally desirable: the C bands are preferable for operational and cost reasons but offer only 300 MHz of additional bandwidth; the K_u bands are more costly to use and have some band pairing limitations (only 1000 MHz of total up-link bandwidth are allocated against 1500 MHz of total down-link bandwidth in Region 2), but they offer 500 MHz of additional bandwidth and probably somewhat more orbit locations.

The real situation is the following. The 300 MHz wide down-link C expansion band is not authorized for use in the United States except for one private international earth station each at the East and West Coasts. The band is used by the U.S. Armed Forces for tactical terrestrial communications. The question of need is thus academic unless the band were authorized for additional space use.

The matching up-link expansion C band (an as yet undetermined 300 MHz wide band in the 6425–7075 MHz range) is not encumbered by U.S. domestic regulation, and the FCC has begun to authorize its use, albeit in unorthodox pairing with K_u band down-link frequences. U.S. demand exists now but may be limited by the unavailability of usable down-link bandwidth.

The K_u expansion bands (500 MHz of bandwidth each for up- and down-links) are not authorized for domestic use in the United States. However, the FCC has begun to authorize international use in response to demand.

The existing situation suggests therefore that there will be a U.S. need for the expansion bands within, and likely to the limits of, existing U.S. regulatory constraints. On a more speculative note, it is expected that such need would exceed the

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capacity available to the United States from its allotments in a plan, at least in the K_c bands.

The existing situation also suggests that the K_u expansion bands, for which down-link use is authorized in the United States, are more important than the C expansion bands. Nevertheless, the up-link C expansion band would also be a potentially welcome source from which to redress the lack of overall up-link bandwidth at K_u band.

For developing countries the C bands should be more attractive for initial implementation due to their lower implementation cost. Renewed attempts by the United States to avoid a priori planning at K_u band frequencies would therefore be compatible with the logical band preferences of the United States as well as of the developing countries.

The United States should continue efforts to avoid rigid planning of at least the K_u expansion bands, to develop regulatory provisions by which it might retain maximum opportunities to make legitimate use of planned bands, and to establish and prepare to commit itself to a decisive policy by which to assert its claims under a planning regime, if necessary. This policy could form the basis for a definitive protocol statement for the Final Acts of the second session of the Space WARC.

Senator GORTON. Thank you, Mr. Weiss.

Mr. Doyle.

Mr. DOYLE. Thank you, Mr. Chairman.

I want to thank Senator Goldwater and you for this opportunity to testify before your subcommittees on an analysis of the results of the conference. Your letter asks basically that we address five categories, and I will present very topically outlined, brief statements comprising observations, conclusions, and recommendations on each of those five topics, and submit a more elaborate explanation of that for the record.

Senator GORTON. Thank you. It will be included.

Mr. DOYLE. Thank you.

The results of the conference's first session are, as we have heard, tentatively favorable as compared to the possible alternatives and were certainly laudatory in achieving the RARC-SAT-83 Final Acts incorporation.

However, they are preliminary in nature. They are not well defined on details of planning. They are subject to substantial adjustment when they are elaborated, as Mr. Weiss has pointed out. And they are so ill-defined that I believe the United States must not reduce its efforts at this time to achieve acceptable Final Acts from WARC-ORB-88.

Second, consider the implications for U.S. policy arising out of the conference. I think the intensifying politicization in the ITU raises serious questions about its political future, and that has already been discussed here this afternoon. The United States should conduct a critical reexamination of the union's organization and charter in contemplation of the Plenipotentiary Conference in 1989, and my extended remarks recommend the creation of a task force to achieve that, and describe how that task force might address the issues.

The U.S. delegation's size and composition, its complexity, dramatized again the uniqueness of our telecommunication industry structure in the world, as well as the complexity of our telecommunication policy machinery, and the continuing need for consideration of the establishment of a Federal Department of Telecommunication in our Government.

Finally, the U.S. operations in selected bands of particular concern have not been constrained. Although it was feared in advance

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of the conference that they might be, we have avoided both economic and serious operational problems for systems operated for national security purposes.

On the implications for U.S. industry using the GSO, the Federal Communications Commission and our industry retain their freedom to continue exploiting the expanding and improving satellite technologies. Contemplated planning is limited in the frequency bands addressed, it is for the fixed satellite service only and it is of a flexible nature, at least as presently conceived. And again, I share Mr. Weiss' concerns that we watch carefully how the new procedures would be elaborated.

The U.S. DBS systems now have equal status with European and Asian systems as a result of the incorporation of the RARC Final Acts. However, future international coordination of nonplanned networks will, I believe, be under new procedures, probably after July 1989 or January 1990, using probably multilateral planning meetings, possibly of a cyclical nature.

Effective industry involvement in developing practical and workable procedures is essential in both the intersessional period and at WARC-ORB-88.

In assessing the preparations necessary for 1988, the interagency and public policy organizations and activities used to prepare for WARC-ORB-85 should be continued. Permanent telecommunication and computer link facilities should be established in Geneva to support all U.S. delegations to ITU meetings, not just major WARC's.

The United States in my opinion should contribute constructively to developing arc allotment plans for the expansion bands. However, the United States should be the leader in developing improved procedures for the designated frequency bands in order to guarantee the workability and effectiveness of these procedures.

The United States should and must maintain close contact with the IFRB and CCIR staffs and study groups in their intersessional work, and I have recommended mechanisms for achieving that goal. An early designation of a U.S. delegation core group and early identification and involvement of delegation leadership will be as important next time as it was this time.

In the last aspect, on work to be done in the intersessional period, the work to be done is well indexed in the recommended agenda prepared by the first session for the second session of the conference, and that is incorporated in my written testimony. The ITU Administrative Council meeting next spring and in the following year could add items to that agenda, so it is not necessarily set in final form.

The U.S. positions on the nature and scope of the ITU intersessional work, that were discussed at some length by Ambassador Dougan, will have to be put into place by April of next year, when the Administrative Council preparation will have to be completed so that we can go to that Council meeting having the United States' councilor well versed on what it is we believe can and should be attempted to be accomplished in the intersessional period.

I hope that in all else that has to be done we will not lose sight of the fact that formal submission to the Senate of the WARC-

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ORB–85 Final Acts is needed for advice and consent to ratification. I think it will strengthen the United States' delegation position at WARC–ORB–88 if we have ratified the results of the 1985 conference, and we ought not to lose sight of that goal.

In summary, the work to be done is substantial, the time to do it is very short. Elaboration of all of these summary points is found in the prepared statement. Mr. Chairman, if you have any other questions I would be glad to attempt to answer them.

Thank you for your attention.

[The statement follows:]

STATEMENT OF STEPHEN E. DOYLE, DIRECTOR, STRATEGIC PLANNING, AEROJET TECHSYSTEMS CO.

Thank you, Mr. Chairman. I want to thank Senator Goldwater and Senator Gorton for the invitation to present to their Subcommittees an analysis of the results of the first of two sessions of the ITU's World Administrative Radio Conference on the Geostationary-Satellite Orbit and the Planning of Space Services Utilising It (WARC-ORB–85). That invitation asks for: (1) an analysis of results of the Conference, (2) analysis of implications of the results for U.S. policy, (3) implications for industries using the geostationary-satellite orbit (GSO), (4) an assessment of the preparations necessary for the 1988 session of the Conference, and (5) comment on the work to be done in the Inter-sessional period.

1. The results of the Conference's first session are:

(A)—Tentatively favorable compared to possible alternatives; and

(B)—Laudatory in achieving RARC–SAT–83 Final Acts incorporation;

However, they are also:

(C)—Preliminary in nature and not well defined on details of planning;

(D)—Subject to substantial adjustment when elaborated; and

(E)—So ill-defined that the U.S. must not reduce its efforts to achieve acceptable Final Acts from WARC–ORB–88.

2. *On implications for U.S. policy:*

(A)—Intensifying politicization in the ITU raises serious questions.

(B)—The U.S. should conduct a critical reexamination of the union's organizations and charter in contemplation of the Plenipotentiary Conference of 1989.

(C)—The U.S. delegation size, composition and complexity dramatized again the uniqueness of our telecommunication industry structure, the complexity of our telecommunication policy machinery, and the continuing need for a Federal Department of Telecommunication.

(D)—U.S. operations in selected bands of national concern have not been constrained.

3. *On implications for U.S. industry the GSO:*

(A)—The FCC and U.S. industry retain freedom to continue exploiting improving satellite technology.

(B)—Contemplated planning is in limited frequency bands, for the FSS only, and is of a flexible nature.

(C)—U.S. DBS systems now have equal status with European and Asian systems.

(D)—Future international coordination of non-planned networks will be under new procedures (probably after July 1989 or January 1990), using multilateral planning meetings, possibly of a cyclical nature.

(E)—Effective industry involvement in developing practical and workable procedures is essential in the inter-sessional period and at WARC–ORB–88.

4. *Assessing preparations necessary for 1988:*

(A)—The inter-agency and public policy organizations and activities to prepare for WARC–ORB–85 should be continued.

(B)—Permanent telecommunication and computer link facilities should be established in Geneva to support all U.S. delegations to ITU meetings.

(C)—The U.S. should contribute constructively to developing ARC allotment plans for the expansion bands.

(D)—The U.S. should be the leader in developing improved procedures for designated frequency bands, to guarantee the workabilty and effectiveness of these procedures.

(E)—The U.S. should maintain close contact with IFRB and CCIR staffs and study groups in their inter-sessional work.

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(F)—Early designation of a U.S. delegation core group and early identification and involvement of the delegation leadership will be important.

5. *Work to be done in the inter-sessional period:*

(A)—Work to be done is indexed in the recommended agenda for WARC–ORB–88. (The ITU administrative council could add items to the agenda.)

(B)—U.S. positions on the nature and scope of ITU inter-sessional work will be needed by the U.S. councilor at the 1986 administrative council meeting of the ITU.

(C)—Formal submission to the Senate of the WARC–ORB–85 Final Acts is needed.

(D)—The work to be done is substantial, the time to do it is short.

Elaboration of these summary points is found in the prepared statement submitted for the record, Mr. Chairman; if you have any questions, I will be pleased to attempt to answer them. Thank you for your attention.

Prepared Statement of Stephen E. Doyle, Director of Strategic Planning, Aerojet TechSystems Company, Sacramento, California; submitted to the joint meeting of the Communications Subcommittee and the Science, Technology, and Space Subcommittee of the Senate Committee on Commerce, Science, and Space Subcommittee of the Senate Committee on Commerce, Science, and Transportation; Wednesday, November 6, 1985.

In a letter dated October 18, 1985, Senators Barry Goldwater and Slade Gorton requested that I appear before the Subcommittee to testify. They wrote: "We would appreciate your analysis of the results of the conference and their implications for U.S. policy and for industries using the geostationary orbit. We are also interested in your assessment of the preparations necessary for the 1988 conference and of the work to be done during the interim period."

The material that follows is organized in the five topic areas mentioned in the invitation to testify.

1. *Results of the conference first session:*

The results of the first of two sessions of the Word Administrative Radio Conference on the Geostationary-Satellite Orbit and the Planning of Space Services Utilizing It (WARC–ORB–85) are tentatively favorable compared to possible alternative outcomes. Numerous national delegations and several of the developing country caucus groups were initially intent upon an *a priori* plan, dividing up the use of the orbit among nations. Such a plan would take no account of the relative nature or timing of needs of countries for satellite services. Most of the developed countries were not willing to support an *a priori* planning approach.

It was decided, early in the conference, that whatever form planning might take, it would be limited to the Fixed-Satellite Service (FSS). Other services, such as Mobile, Meteorological, Earth Research, Space Research and Radionavigation-Satellite Services, were considered to be so lightly used, or so unlikely to make significant use of the geostationary satellite orbit (GSO), that they did not warrant planning at this time

After several weeks of discussion, much of which was non-substantive procedural debate, it was agreed that: Only the FSS would be planned, planning would be done in the form of arc allotment plans and improved procedures, and arc allotment planning would be limited to the 1979 "expansion bands" at 6/4 GHz and 14/11-12 GHz.

Arc allotment plans would provide a guarantee for each country of at least one slot in a predetermined orbital arc, using 800 MHz of radio frequency bandwidth in a defined service area. It was understood that some countries might require more than one orbital position. Conference Doc. 324 (Rev. 1), 15 September 1985, summarized the results of the discussion on planning:

"3.3 *Planning Methods*

"3.3.1 The planning method shall consist of two parts:

(a) an allotment plan that shall permit each administration to satisfy requirements for national services from at least one orbital position, within a predetermined arc and predetermined band(s). The allotment plan shall be established in the bands:

4 500—4 800 MHz and 300 MHz to be selected in the band
6 425—7 075 MHz; and
10.70—10.95 GHz, 11.20—11.45 GHz and 12.75—13.25 GHz.

(b) Improved procedures that shall satisfy requirements in addition to those appearing in the allotment plan. These procedures shall be applied in the bands:
3 700—4 200 MHz,
5 850—6 425 MHz and,
10.95—11.20 GHz,
11.45—11.70 GHz,

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11.70—12.20 GHz in Region 2,[1]
12.50—12.75 GHz in Regions 1 and 3,[1]
14.00—14.50 GHz,
18.10—18.30 GHz,[1,2]
18.30—20.20 GHz,[2]
27.00—30.00 GHz,[2]

"3.3.2 Both parts of the planning method will need to conform to the planning principles contained in Section 3.2.

"3.3.3 The planning method must preserve the rights of other services having equal primary status in the bands to which this method is to be applied. This will necessitate the adoption and application of appropriate sharing criteria."

The second part of the planning approach, referred to as "improved procedures" remains undefined at present. Close attention to this subject in the inter-sessional work and at the 1988 session of the conference will be important.

Compared to the alternatives possible, e.g., multi-service, multi-band *a priori* plans, it is clear that the results of the first session are tentatively favorable, subject to what may occur in the inter-sessional work and at the second session in 1988.

One laudatory result of WARC-ORB-85 was the incorporation into the Radio Regulations of the Final Acts of the 1983 Regional Administrative Radio Conference for Broadcasting Satellites in Region 2 (The Americas), referred to herein as RARC-SAT-83. When the World Administrative Radio Conference on the Broadcasting Satellite Service (BSS) of 1977 developed BSS plans for Regions 1 and 3, the countries of North and South America decided not to adopt formal plans, but to study the matter further. Consequently, in 1983, the Region 2 countries adopted somewhat different, more flexible plans for their BSS operations. These plans, in the Final Acts of RARC-SAT-83, are now formally adopted as part of the ITU Radio Regulations. This puts the countries of North and South America on an equal regulatory footing with the countries of Europe, Africa, Asia and the Pacific Basin with regard to broadcasting satellite operations.

Several planning principles were adopted by the conference and are contained in the report of the first session. These principles were discussed at length and some of them were the subject of extended debate. It is not clear at this point how relevant or important these principles may be in time. The subjects on which principles were adopted are:

Guarantee of access and equitability;
Sharing with other services;
Reservation of resources;
The technical aspects of special geographical situations;
Consideration of existing systems;
Provisions for multi-administration systems;
Flexibility;
Different planning solutions in different circumstances;
Efficiency;
Provisions for multi-service and multi-band networks;
Others (keeping administrative costs as low as possible).

Each of these topics has a negotiating history with different countries having different interests at stake. Direct contact with U.S. spokesmen in Committee 5 (Ron Lepkowski, FCC) and Working Group 5A (Francis Urbany, NTIA) would be the best source of accurate and detailed information on these principles.

All that has been agreed with regard to planning requires a great deal of additional work on implementing procedures, criteria, standards and technical matters. The issues at stake concerning flexibility, workability and practicality of the results of the conference are far from decided. What we have are agreements that are preliminary in nature and subject to substantial possible modification when elaborated. They are not now well defined, consequently, the United States must not let up on its efforts to work for an acceptable outcome to this conference.

2. *Implications for U.S. policy*

A problem that has been building in the ITU since the early 1960s is the steadily increasing politicization of the work of the Union. For the 120 years since the original International Telegraph Union was founded, the ITU has been an effective coordinator and regulator of international telecommunication operations. Its work was done efficiently and effectively over the years because, like the Universal Postal

[1] In these bands the improved procedures shall apply between networks of the FSS only.
[2] The CCIR is asked to study the technical character of the FSS in the frequency band 20/30 GHz and to report to the second session of the Conference with the view of taking a decision on the future plan of these bands by a future competent conference.

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Union, it was a specialised organization dealing apolitically with technical matters of international cooperation.

Within the past quarter of a century, that characterization of the Union has been changing. More and more often debates in Union forums take on a legalistic, sociopolitical or political-economic tone. Many countries send highly qualified technical teams to participate in the work of Union meetings. Increasingly, however, we are finding diplomats, lawyers and politicians appearing at ITU meetings and introducing topics and debate that are divisive, non-technical and calculated to destroy, rather than encourage cooperation. An insidious transformation is taking place in the ITU, as well as in other specialised agencies of the Union Nations. Although the Government of the United States has tried to cope with this phenomenon on a consistent basis, few other countries can or do. I believe these developments raised serious questions about the future viability of the ITU.

In 1989, the ITU will convene a plenipotentiary conference to review and amend the International Telecommunication Convention of Nairobi, 1982. At that time, it would be appropriate to bring before the Union membership any proposals we might have to modify the roles or structures of Union organs. Considering the complexity and difficulty of the issues to which I allude, it is not too early to organize a task group to begin serious analysis of alternative proposals the United States and other countries might consider placing before the 1989 Conference. Topic such as: Weighted voting in selected forums, reduced size of administrative/technical meetings, modification of roles of selected organs, revisions to planned frequency of meetings, could be addressed. This is a sample list of kinds of issues. I am confident that a dedicated group of qualified experts could find many more topics useful to consider. I urge the subcommittees to recommend early action useful to consider. I urge the subcommittees to recommend early action within the Executive Branch to begin work in this area.

Those who know me, have read articles I have written, or who are aware of previous testimony I have submitted before the Communications Subcommittee, know that I am not a supporter of the current polycentric decision-making process that prevails in the telecommunication policy sector of the U.S. Government. For nearly 20 years, I have advocated serious consideration of the formation of a cabinet level Department of Telecommunication. The size, complexity and composition of the U.S. delegation to WARC-ORB-85 is another case in point to dramatize my argument. We are a nation, unique in the world in many aspects, including: The size, complexity and diversity of our communication industry, the size, complexity and diversity of related government agencies, the lack of a central executive authority for telecommunication policy enunciation, and the lack of a central executive telecommunication department.

The U.S. Delegation to this conference reflects underlying structural problems in the United States' telecommunication sectors of government and industry. Eventually, Congress will have to address these structural problems.

As the United States approached WARC-ORB-85, we had concern about possible operational and economic harm to U.S. Government radio services in selected frequency bands. During the conference, through consistent effort, with well prepared arguments and effective debate, the U.S. delegation was able to avoid decisions that could compel dislocation of existing government services. As it turned out, on-going U.S. operations in selected bands of national concern were not constrained or adversely affected.

3. *Implications for U.S. industry using the GSO*

Considering the results of the first session, one concludes that the Federal Communications Commission (FCC) and U.S. industry retain freedom to continue exploiting improving satellite technology. The contemplated arc allotment planning is in limited frequency bands (the so-called 1979 "expansion bands"); planning will apply to the Fixed Satellite Service (FSS) only; and the agreed upon approach is very flexible compared to *a priori* or orbital assignment plans that were considered but not agreed.

As a result of the incorporation into the Radio Regulations of the Final Acts of the RARC-SAT-83, Region 2 countries are now on an equal regulatory footing with the countries in Regions 1 and 3, whose 1977 WARC-BS Final Acts previously had been formally incorporated. There is still work to be done in the BSS arena. Region 1 feeder link planning in selected bands, consideration of possible consequential revisions to the Radio Regulations from adoption of the RARC-SAT-83 results, have yet to be completed.

Considering the second part of the planning approach adopted and described above, viz. improved procedures for the FSS in designated bands, many countries proposed alternative approaches. As the first session drew to a close, it appeared

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that a consensus was forming in favor of some form of regional multilateral planning meetings. However, very litle is agreed in this connection and much work remains to be done. The U.S. industry and government must be diligent in this area, maintain close contact with the CCIR and IFRB working staffs, and participate in appropriate Study Group meetings in the inter-sessional period. As a result of work yet to be done, future international coordination of non-planned networks in the FSS will be under new procedures (probably after July 1989 or January 1990), using some form of multilateral planning meetings, possibly of a cyclical nature. It will be very important for government agencies to insure that there is effective industry involvement in developing practical and workable procedures, in the inter-sessional period and at WARC-ORB-88.

4. *Preparations necessary for 1988*

When one considers: (1) the amount of work, (2) its complexity, (3) the resources and time needed to do it, and (4) the amount of resources in the approved budget of the ITU; then, unless national administrations, like our own, undertake to do a great deal of the basic study and proposal formulation that is needed, and contribute that work in support of the ITU staff in the inter-sessional period, I believe there may be neither enough time nor enough budgetary resource available to the Union to do all the work that needs to be done. If enough of the required work is not completed, the Union may have no choice other than to slip the 1988 session to a later time. That kind of conference date change is always difficult because of the number and frequency of other Union meetings.

I believe strongly that it is in the United States' national interest to work hard within the structure of the Union to achieve its goals. If the endemic problem of political distortions and distractions can be overcome, the Union should be strengthened and made more efficient. Its services are vital to the world community. If the political problems being generated in the specialized agencies today cannot be overcome, we will have to find some viable substitute for the functions of the ITU. They cannot simply be abandoned. Consequently, I believe it is in our national interest for government and industry alike, working in close cooperation, to do whatever we can to ensure that WARC-ORB-88 can be convened on schedule and can successfully conclude its work.

Several national, inter-agency and public policy organizations and activities were used to prepare for WARC-ORB-85. They included: IRAC's Ad Hoc 178 and its supporting working groups, the Interagency Coordinating Group, SIG-Telecom and/or SIG-Space Policy Reviews, FCC Public Inquiry through docketed proceedings, FCC Public Advisory Committee and its working groups, CCIR Study Group participation, CCIR National Advisory Committee reviews, and informal collaboration among industry and government organizations to obtain timely, constructive and useful advice for bilateral and multilateral pre-conference coordination with foreign governments and Union staff.

All of these useful and proven mechanisms should continue to be employed as we prepare for WARC-ORB-88.

In recent years, we have experimented with the use of specialized telecommunicatin facilities and computer links between Washington, D.C. and Geneva, Switzerland, in support of selected U.S. delegations to major ITU meetings. I believe that the continuity of these services is important and that they provide highly effective support. Consequently, I urge the Subcommittees to recommend to concerned agencies that permanent telecommunication and computer link facilities be established between Washington and Geneva to support all U.S. delegations to ITU meetings. Although the large administrative conferences and CCI plenaries are important, they are no more important than effective involvement in Study Groups, committee meetings, informal consultations and routine communications. All levels of continuous U.S. activity will be made more effective with improved communication and accessible computer resources.

I have already noted, but I believe it deserves repeating, that the United States should be involved in, and should contribute constructively to development of arc allotment plans for the expansion bands. By contrast, I think that the United States should be the leader in developing improved procedures for the FSS in designated frequency bands which are of interest to our industry and government users. Our goal should be to guarantee the workability and the effectiveness of any new procedures. If we are to accomplish these objectives, close contact must be maintained with IFRB and CCIR staffs and Study Group activities in the inter-sessional period. We should consider, if necessary, placing specialist teams in Geneva on rotation during key work periods in 1986 and 1987. It will be too late to try to do the work at WARC-ORB-88.

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Learning from our past experience is important. In recent years, for major ITU conferences, the Department of State has wisely initiated delegation preparatory work well in advance of actual meetings. Consequently, delegation core groups, including industry advisors, and delegation leaders have been brought into contact with one another well before the conference. The delegation personnel form a mutually reinforcing team and develop an awareness of the strengths brought to the team by its selected members. I was a privileged party to such a process leading up to the WARC-ORB-85. I believe the early designation of the core group and the identification of Dean Burch made a major contribution to the success achieved in Geneva. I hope the Subcommittees will again encourage the concerned agencies to collaborate early on a core group and to obtain early designation of the delegation leader with approval by the White House. From my perspective, the national interest could not be better served than by having Dean Burch designated as head of the U.S. delegation to WARC-ORB-88. His leadership abilities, balance, acumen and perspicacity are unequalled in my experience.

5. *Work to be done in the inter-sessional period*

The work to be done is well indexed in the draft agenda prepared by the conference for consideration by the Administrative Council. The Council, at its 1986 Session, could modify this draft or add items to it. Using the draft agenda as a guide, including its numbering scheme, the inter-sessional work, at a minimum, will have to address:

1.1 Arc Allotment Planning for the FSS in the expansion bands;

1.2 Regulatory Procedures for the expansion bands' plans;

1.3 Technical Standards, Parameters and Criteria for the FSS in the expansion bands;

2. Review and revision of regulatory procedures and appropriate technical standards, parameters, and criteria for space services and frequency bands not subject to planning;

3. Review and revision of space service definitions;

4. Establishing provisions and plans for BSS feeder links;

5. Consideration of using 10.7 to 11.7 (uplink) in Region I for all modes of FSS operation, and consequential RR revisions;

6. Consideration of studies and implications of satellite sound broadcasting as outlined in Resolution No. 505 of WARC-79;

7. A decision on long-term applicability of Resolution No. 2 of RARC-BS-83;

8. Consideration of suitable bands for BSS/HDTV, including revisions to RR Article 8 at a later competent conference;

9. Decisions on consequential changes to the Radio Regulations required by decisions taken at WARC-ORB-88;

10. Consideration of and aciton on appropriate and relevant Resolutions and Recommendations; and

11. Evaluation of financial implications of decisions taken, in accordance with paragraph 627 and other pertinent provisions of the Nairobi Convention.

Another important area of concentrated effort that will have to be completed by next May or June is development of positions for the U.S. councilor to the next session of the ITU Administration Council. At that meeting, a budget and schedule for inter-sessional work by the Union will be adopted.

It would not serve a useful purpose for me to elaborate all the aspects of these topics to be studied. A great deal of important work has to be done, and some of it has to be done soon.

An item not on the ITU draft agenda must be on our national agenda—ratification of the Final Acts of WARC-ORB-85. Comtemplating the time involved:

Preparation for submission to the Senate, with legal and budgetary impact analysis—about 1 year.

Scheduling, conduct and report on hearings on the treaty in the Senate—6 months to 1 year.

White House action to ratify and proclaim the treaty—3 to 6 months.

It is clear that the process should be begun as soon as possible.

Before closing, I would like publicly to thank the Chairman of the FCC, Mr. Mark Fowler, Ambassador Dean Dougan, Mr. David Markey Administrator of NTIA, Mr. Hal Kimball and Ambassador Dean Burch for the confidence they exhibited in me and for the privilege to work with them in this endeavor.

And, Mr. Chairman, thank you.

Senator GORTON. Thank you very much.

I am going to start with Mr. Stowe and ask you, in this case on behalf of Senator Goldwater, what is the difference between an a

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priori plan and the allotment planning recommended by the conference?

Mr. STOWE. I would like to take that question in two parts. I think the most important difference is that, as originally recommended, a priori planning was going to apply to virtually all of the frequency bands, including the ones that are of principal importance to the United States.

Through the course of the negotiation, we not only moved from the term "a priori" to the term "allotment," but we also moved out of the frequency bands that are of critical importance to us. So in terms of a question, what is the difference between what we went to avoid and what we ended up with, I think there is a tremendous difference.

In terms of the question about detailed planning and what is the difference between the nature of those two, the answer has to wait until 1988. There was so much maneuvering, even at the last moment, and there were so many attempts to put in things that were not fully staffed and not completely agreed, that in the end almost all of the questions about detailed definition of allotment were put over to the intersessional period and to the second conference.

Senator GORTON. Would guaranteed access increase or decrease the demand for space hardware services and launches?

Mr. STOWE. I doubt that the guaranteed access as it will be provided in the allotment plans will make much difference. I think this is a political aspiration that really is pursuing the kind of economic goals I was talking about before.

I do not think it will have much impact on whether a country actually launches its own satellite or participates in a regional satellite system. It will have an impact on the costs and flexibility of others when they try to use the orbit.

Senator GORTON. A related question is this: Is our U.S. telecommunications industry willing to adapt to stricter technology standards in the interests of more efficient uses of the orbit?

Mr. STOWE. I think the answer to that is yes. Again, if I could take this in two parts. There is a good example in the domestic scene. We have gone from 3 degrees to 2-degree orbital spacing in order to accommodate more domestic systems, and I think it would be reasonable for us to assume the same kind of burden in accommodating new international systems.

The important second half of that, though, is that we would like to impose constraints and increase costs on ourselves based on real demand by others for use of the orbit, not based on paper demand.

Senator GORTON. How willingly did SBS bear the cost of sending you to this conference? Is it going to do it again to provide for continuity?

Mr. STOWE. SBS thought that it was extremely important to our future and to the future of the domestic satellite industry that we protect against the imposition of a priori planning. I am sure that that is an interest that is going to continue in the future, and I think that is an interest that is shared by all participants in the domestic satellite industry.

Senator GORTON. Mr. Weiss, how committed should the United States be to the development of the advanced communications tech-

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nology satellite operated in the KA band? Is there a commercial demand for that technology?

Mr. WEISS. Thank you, Mr. Chairman. It is not an easy question to answer.

It should, of course, be committed to it. There is much to be had in this frequency band. Its very large bandwidth may offset some of the higher implementation costs that now exist. I think there is enough research going on right now in private industry, in this country and in other countries, so that there is no particular greater effort required to develop these bands.

At the moment, there is still ample capacity available in the lower K bands, and the higher bands will probably be used from the need to move slowly into them than from a particular push on developing the technology. This has come very naturally in the other bands and it will come very naturally in these bands also.

But a commitment in principle, yes, Mr. Chairman. Thank you.

Senator GORTON. Will the decisions of the conference to study the KA band adversely affect American interests?

Mr. WEISS. Did I understand you, whether they would affect adversely broadcasters?

Senator GORTON. Our American broadcasters.

Mr. WEISS. Satellite broadcasting? Well, North American interests are very well taken care of. They will very positively affect the U.S. industry. As I think Ms. Obuchowski said earlier, the regulators now know what they can do. It is no longer a question of whether they can assign somebody an orbital position or not. They can now do it under this new plan.

Senator GORTON. Let me ask you the same question I asked Mr. Stowe: Was your employer happy to send you to these conferences?

Mr. WEISS. I think I agree entirely with what Mr. Stowe had to say on this matter. I really cannot add anything to that.

Senator GORTON. Senator Goldwater wanted to ask, what steps can be taken to bring Intelsat's satellite coordination procedures more closely in line with ITU requirements? Did the Comsat instructional process help?

Mr. WEISS. Well, Mr. Chairman, the last time I looked at the relevant documents of Intelsat, it seems they have been completely in line with the ITU procedures as far as the actual criteria are concerned. The only difference that exists right now is that Intelsat goes through an internal process with its signatories.

There is an advantage to that. The advantage is that Intelsat can deal with all coordinations in one fell swoop, and when it then comes to coordination under the ITU procedures the work has been done. This is the advantage.

The disadvantage is that in principle this may add a 6-month period to the entire coordination process. To the extent that the ultimate outcome is the same, the two points may hold a balance. Under the new procedure, it may be that the Intelsat procedure—the one fell swoop approach—may now also become general practice, and then, Mr. Chairman, it would seem to me that there is no reason for Intelsat to have any different procedure at all.

Senator GORTON. Thank you.

Mr. Doyle, what do you believe will be the nature and scope of the kind of work which will take place between the sessions?

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Mr. DOYLE. I think its nature will be very complex and, because of its complexity, I think it will require the participation of all of the agencies of Government that are actively functioning in the broad telecommunication area as regulators and users.

I believe we will have a highly diverse industry interest in that participation, and I believe that the work is very demanding. I do not think that in the time that exists between now and the convening of the conference, working backward to the time when we would want to submit proposals to be seriously considered by other governments in advance, we have very much time, because the work is so complex and so demanding.

I think the time is quite short. I think we are going to have to prioritize that work, and one of the challenges that will lay before the first panel that you had at this table this afternoon is to identify what we will prioritize as our number one, number two, number three targets for full elaboration of U.S. positions, and what we will have to do and treat as secondary.

Senator GORTON. How long will it take you to set those priorities as a practical matter?

Mr. DOYLE. I think by the time the Federal Communications Commission reconvenes its National Advisory Committee, which is now contemplated to be done in January, the Government is going to have to put its house in order with regard to how it wants to proceed. So I will say within the next 2 months.

And then, to prepare the U.S. Councilor to go to the Administrative Council meeting of the ITU next spring, we are going to have to decide how we want the ITU to order its priorities. You heard how limited the resources are for the ITU to work with. There is slightly more than $400,000. We have probably got, by IFRB staff estimates, on the order of $2 million of work that could be done to meet all of the job assignments that grew out of the first session. So there is an enormous disparity in the amount of work to be done nationally and internationally, and the manpower and resources and time available to do it all.

I think time is our main opponent here.

Senator GORTON I believe that you were here through all of the testimony.

Mr. DOYLE. Yes, Senator, I was.

Senator GORTON. Yes, you heard the comments which were made by our earlier panel about the sovereignty issue over the geostationary orbit. Do you have anything which you would add to their comments on that issue and what our future attitude in due course ought to be?

Mr. DOYLE. I would add one point with regard to how the issue came to the ITU. It was, I think, Ambassador Burch who said that the Colombians had been rebuffed at the U.N. and therefore decided to take the matter to the ITU.

The issue was brought to the U.N. initially after the formation of the Declaration of Bogota in 1977, in which the equatorial countries came together and declared that they considered those portions of the geostationary arc over their national territory as subject to their national sovereignty. They then brought the results of that declaration to the U.N. for awareness of the balance of the membership and for, they hoped, recognition and ratification.

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In the Outer Space Committee, the Committee on the Peaceful Use of Outer Space of the General Assembly, the consensus was that the geostationary orbit is in fact in outer space, that outer space is in fact now subject to the legal regime of the 1967 outer space treaty, and that treaty says that sovereignty shall not be exercised over portions of outer space.

So the substantial majority, more than 100 countries who have signed and about 95 countries who have ratified the outer space treaty, do not give any credence to these claims of the equatorial countries. There are, I believe, fewer than 12 countries lying on the plane of the equator.

Senator GORTON. I should have asked that. Do all of the equatorial countries make these claims, or only some of them?

Mr. DOYLE. No, sir. There are three or four very vocal countries. It is generally either Colombia or Ecuador who initiates debate on these topics, whether at the U.N. or the ITU. Then there are two or three who come in and endorse the positions and have their own national views.

Senator GORTON. Who are they?

Mr. DOYLE. Indonesia has been heard on this subject, but they are not adamant, nowhere near as adamant as Colombia or Ecuador. Brazil has occasionally said, for reasons of regional political accommodation, that they thought that the Colombian-Ecuadorian claims should be given serious consideration. But they have not come to the point of endorsing it.

There are some other countries in the Asian Pacific area who have spoken, and I would have to go look at a map to remember who they are. I will not try now.

Senator GORTON. But Colombia is clearly there?

Mr. DOYLE. Colombia is clearly the most outspoken advocate of this recognition.

Now, when they brought the matter to the U.N., the U.N. said, there is a planned ITU world conference dealing with the geostationary orbit and before we, the United Nations Committee on the Peaceful Uses of Outer Space, dispose of this issue, perhaps we ought to wait and see what the geostationary satellite conference does.

It was essentially tabled, and the idea was to wait and see what the ITU would do with the issue and maybe they could resolve it. The fact is, the ITU simply declared it was a matter of political dimension beyond its competence.

I believe the matter will now be brought back and represented to the General Assembly and/or the Outer Space Committee. I believe that the overwhelming majority of nations attending any such meeting will be rudely yawning during all such speeches, and I doubt that anything of substance will transpire.

I think this is a matter of great emotional attachment to the governments who espouse it, and I don't think they are going to let it lie. But I don't see how they can prevail in the face of more than 100 or 120 countries who simply consider the claims ludicrous.

Senator GORTON. Thank you.

Thank you all very much. You have been most helpful to us. I believe that we may send you a few more written questions from other members of the committee.

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Mr. Doyle, before you end, did you have another comment?

Mr. DOYLE. Just one closing comment, Mr. Chairman, on a question you raised to the previous panel. You asked about articles and material that have been published.

Senator GORTON. Yes.

Mr. DOYLE. I would like to call to the subcommittee's attention a series of articles that were prepared and published by Broadcasting Magazine, that began the Monday following the convening of the conference, which would have been around August 12, and ran through September 23. Every Monday, for a series of weeks, in Broadcasting Magazine, there are weekly summaries; and then the September 23 issue contains a wrap-up of the conference.

Senator GORTON. Thank you very much. We are going to include those in the record by reference.

Mr. DOYLE. It is an excellent series. There was also a similar series in the newsletter Satellite News that was done also during the pendency of the conference and at its conclusion. And those two together give a very good summary and encapsulation of what occurred.

Senator GORTON. Thank you.

Mr. Doyle, Mr. Weiss, Mr. Stowe, we appreciate your participation today.

[Whereupon, at 3:34 p.m., the subcommittees were adjourned.]

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